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# OVERDEPENDENCY IN EPILEPTIC GIRLS

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OVERDEPENDENCY IN EPILEPTIC CHILDREN

(Order No. )

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## Abstract

This study was an attempt to better understand the antecedents of epileptic children's overdependency. To provide a conceptual and empirical basis for investigation of the problem, the general problem of overdependency in children was examined in some detail. Then this general discussion was applied to the specific problem of epileptic children's overdependency. The following hypotheses were developed for the study:

Overdependency in epileptic children will be: 1) directly related to the severity of the child's seizures; 2) inversely related to the age of onset of seizures; and 3) directly related to the degree of maternal overrestrictiveness and overprotectiveness.

To test these hypotheses, 40 8-11 year old female subjects were randomly selected from the Seizure Unit of Childrens Hospital Medical Center, Boston. To measure instrumental dependency (ID) - i.e., the seeking out of another individual as a means toward the attainment of some

other goal, e.g., being fed - the Anchor Referral technique (Mostofsky, 1972) was used. This is an interactional measure whereby the subject is afforded an opportunity to ask the experimenter for help on a color comparison task. To measure emotional dependency (ED) - i.e., the seeking out of another individual as a goal in itself, e.g., for affection and praise - the Children's Dependency Scale (Golightly, et al., 1971) was employed. This is a 65-item self-report pencil-and-paper measure developed for latency age children. Maternal child-rearing attitudes were measured by the Parental Attitude Research Instrument (Schaefer & Bell, 1958), a 110-item survey of a wide range of child-rearing attitudes. Both seizure severity and frequency were measured by ad hoc scales developed for the study; age of onset of seizures was expressed in months.

Data analysis employed the Pearson r and chi-square. Results were that none of the hypotheses was confirmed for the total sample. However, after breaking down the sample into 2 Age Groups, a number of significant relationships appeared following an exploratory look at the data. These relationships are best summarized in terms of three patterns:

1) Age Group differences: Whereas both maternal attitudes and seizure parameters were related to degree of dependency among the older Ss, only seizure parameters were so related in the younger group.

2) Significant relationships of different form or in

different direction from prediction: Maternal overrestrictiveness and type and onset age of seizures covaried significantly with dependency; however, relationships obtained were either negative Pearson r's or chi-squares, as opposed to the predicted positive Pearson r's.

3) ED-ID differences: ID was significantly related to all of the independent variables (maternal attitudes, seizure severity, onset age) in some way; ED was only related somewhat to seizure parameters, and almost not at all to maternal attitudes.

Results were discussed in terms of the variables hypothetically antecedent to children's overdependency. Specifically, two such variables - latency age counterdependency and preadolescent sex-typing of dependency - seem to contribute more to overdependency than do two of those variables which were originally hypothesized to be major contributors (i.e., oral fixation and regression fostered by maternal child-rearing attitudes).

In the discussion it was also suggested that seizure parameters, including onset age, type of seizures, and frequency of seizures, do in fact influence the degree of epileptic children's overdependency. However, the nature of this influence is not as simple as was hypothesized. Each parameter has a different effect, and each effect in turn is influenced by the age of the individual. Further discussion

dealt with causative processes in emotional vs. instrumental dependency; implications of the study for further research; and the clinical implications of the study.

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# CHAPTER ONE

## Introduction

### Epilepsy: Medical Background

Epilepsy is a disease syndrome characterized in the neurological literature by paroxysmic, discrete episodes of a wide range of phenomena. The etiology of these episodes, or seizures, is generally considered to be of cerebral origin: "There is a spontaneous neuronic excitation at some focus . . . spreading to subcortical centers of the brain . . . along other than the neuronic pathways involved in physiological responses . . . resulting in events of a disorderly and catastrophic character" (Sakel, 1958). These "events" can include any one or combination of the following response patterns: simple motor involvements of one or a combination of muscle systems, characterized by jerking movements and/or hypertonicity and/or flaccidity; autonomic activity; loss of or disturbance of consciousness, including dejà vu and "dreamy states"; changes in affects; sensory hallucinations and illusions; complex behaviors of many sorts performed without consciousness and followed by amnesia. Any single seizure lasts between several seconds and several hours (except for the rare condition of "status epilepticus," a seizure that may persist uninterrupted for longer periods). The frequency of seizure attacks varies from numerous (e.g. 30) seizures per

day to one in a lifetime.

Not all seizures are symptomatic of epilepsy. Gascon (1973) has defined the distinction well:

> A seizure is a paroxysmal change in function, usually with loss of consciousness, caused by abnormal electrical discharges from the brain. Seizures may occur in the course of a systemic pathophysiologic process, such as alcoholic withdrawal, low blood sugar, or lead intoxication: they may also occur during a physiologic stress, such as fever in young children. The occurrence of seizures in these contexts, however, does not constitute epilepsy, since the seizures are limited to the stressful situation and occur because of factors primarily outside the brain.
>
> Epilepsy is a symptom-complex consisting of motor, mental, or affective changes secondary to recurrent, abnormal, electrical discharges from neuronal (nerve cell) aggregates in the brain. What distinguishes someone having seizures from someone with epilepsy is that the latter individual has recurring seizures without requiring precipitating factors external to the brain itself (p. 39).

Epilepsy is classified into three subcategories, depending on seizure type: 1) partial seizures; 2) generalized seizures; 3) unclassifiable seizures.

Partial seizures are those which begin in one part of the body or initially involve sensory or affective disturbance without complete loss of consciousness. They can consist of a variety of symptoms, including jerking of a limb, indistinct visual hallucinations, abdominal pain, changes in affects, "dreamy states," and dejà vu. These seizures can become secondarily generalized, in which case there will follow complete loss of consciousness, stiffness of all muscle systems, then jerking movements of all the limbs.

Generalized seizures initially involve loss of consciousness and often muscle stiffening, jerking, and/or

flaccidity on both sides of the body. What have been called "grand mal" seizures are generalized seizures consisting of loss of consciousness, muscle hypertonicity (followed by a fall), and jerking movements of the limbs. Petit mal seizures are generalized seizures usually involving loss of consciousness and a staring spell, with eyes rolling upward.

Unclassifiable epilepsy corresponds to neither of the two above categories. For example, a seizure might be partial, but show no neurological evidence of localization, or show no evident organic cause (Gascon, 1973).

These categories have supplanted the classical taxonomy of grand mal, petit mal, temporal lobe, and focal epilepsy. Focal epilepsy implied the presence of seizures in which the affected behavior is restricted to a motor component such as twitching, where a corresponding EEG aberration can be shown to exist in a circumscribed locus of the brain (except for the temporal lobe). Temporal lobe seizures,so-called due to the localization of EEG aberration and therefore assumed brain damage to that lobe of the cerebral cortex, included the widest range of symptoms, and involved considerations of personality functioning and psychotic behavior. Virtually all of the symptoms could be experienced in what was called temporal lobe epilepsy (also called psychomotor epilepsy). In fact, temporal lobe epileptics demonstrated such a variety of seizures, organic pathology, and response to drugs, that the only thing most had in common was the EEG focus in the

temporal lobe (Tizard, 1962).

The diagnosis of epilepsy is completed on the basis of many symptoms, among them medical history, neurological and physical examination, and electroencephalographic (EEG) and other laboratory studies. Despite the indispensability of the EEG in the diagnosis of epilepsy, it should be pointed out that there is a very inexact correlation between clinical manifestations and EEG. First, fully 10% of the population has an abnormal EEG, but prevalence of epilepsy is approximately 1/2%. Similarly, 15% of patients with seizures give no evidence of an abnormal EEG (Sakel, 1958). In addition, one-third of epileptics with the supposedly petit-mal-specific EEG of 3 cycles per second spike-wave discharge experience no petit mal seizures (Glaser, 1963). Patients with grand mal seizures quite frequently show no EEG abnormalities when not experiencing a seizure, i.e., during diagnostic procedures (unless a seizure is artificially induced).

## Treatment of Epilepsy

Epilepsy is treated by a variety of means. Anticonvulsant medication is effective in 80-85% of cases (Gascon, 1973), for the control of seizures. Surgery is rarely performed, but is often successful for those cases in which it is carried out (Falconer and Taylor, 1968). Psychotherapy has been attempted with limited success (Gottschalk, 1950). Behavior modification and ketogenic diet (Keith, 1963) are currently being tried, but are in the experimental stages.

Its status as a medical entity notwithstanding, epilepsy is a symptom syndrome that has long been of interest to psychologically-oriented researchers. There are a number of areas which have interested these investigators. These areas reflect qualitatively different questions relevant to brain-behavior relationships, personality functioning, and psychological treatment. It is these areas of interface between psychology and epilepsy that are of interest in this review. Thus, they will be discussed presently. As will be seen it is that area of interface concerning the personality functioning of epileptics that will invite the further pursuit of this study.

## The Interface of Psychology and Epilepsy

### A. Physiological Determinants of Behavior

The description of seizure phenomena makes clear that psychological phenomena are sometimes included in seizures, e.g., affective changes, hallucinations and illusions, "automatic behaviors." Seizures have for a long time been investigated in terms of their physiological correlates. Thus, psychological researchers have been intrigued with the possibility of finding out more about that classical area of inquiry which concerns the physiological determinants of psychological phenomena. This research has taken a number of directions. For example, since surgery is sometimes undertaken to relieve seizures, those particular areas of tissue

damage associated with a certain kind of seizure manifestation can hopefully be discovered. Also, the stimulation of brain areas by implanted electrodes, which is sometimes a part of this surgery, results in behavioral or experiential events in the patient which can then similarly be correlated with particular brain areas (Penfield & Jasper, 1954).

Research has also been pursued in EEG correlates of behavior (Glaser, 1963). This broad area of interest has a special application in epilepsy because of the abnormal brain rhythms present in the majority of epileptic brain wave patterns. Clinical seizures are usually accompanied by electrical disturbances in the usual pattern of brain waves. Thus, psychological seizure components such as affective or sensory changes can be examined in terms of their EEG correlates.

B. Environmental Control of Physiology

The study of physiological components of psychological phenomena has received attention in the opposite direction, also. That is, researchers have discovered that seizure phenomena, both clinical and electrical, can sometimes be evoked through manipulation of environmental conditions. As one example, seizures have been elicited during certain psychoanalytic sessions (Barker, 1948). This implies that a causal link can be established from a psychological event to the physiological processes which produce seizures. The modification of EEG patterns in epileptic patients by introducing visual and auditory stimuli is typified by research

in auditory evoked responses - AER's (Lindsley, 1960) - and contingent negative variation - CNV (Tecce, 1972). This work is reviewed by Mostofsky (in press). These findings demonstrate the bi-directionality of causality between psychological and physiological events, and have interested researchers for this reason.

C. Psychological Treatment of Epilepsy

A third focus for the psychological investigation of epilepsy has been the discovery that seizures are often preventable, given a knowledge of psychological factors. Two distinct, though related, lines of inquiry have been pursued.

1 - Although a predisposition to seizures usually exists within the nervous system, actual seizures are often precipitated by some environmental circumstance. These precipitants, it has long been noted, often have some psychologically-meaningful relationship to the patient (Sakel, 1958). If these precipitants can be identified, seizures can sometimes be controlled. Since psychological meaningfulness has seemed to characterize such precipitants, it has been psychologically-oriented investigators who have sought to pursue this area. For example, it has been found that seizures sometimes correlate with the onset of the menstrual cycle. The psychological significance of these seizures was interpreted in light of the increased awareness of sexual feelings at this time (Bandler, et al., 1957).

2 - It was discovered that epileptics who underwent psychotherapy for emotional problems sometimes experienced a reduction or elimination of their seizures (Cobb, 1940; Gottschalk, 1953). Psychotherapists, especially psychoanalysts, who have pursued this finding have sought to explain seizures as psychodynamically-based or influenced; at least one clinician has recommended psychotherapy as the treatment of choice for epileptics (Clarke, 1915). While not all have made such claims, many have claimed a fair measure of success in seizure reduction through psychotherapy and, more recently, behavior therapy (Mostofsky, 1972b).

D. Personality Functioning of Epileptics

A fourth area of interface between psychology and epilepsy - that area with which this study will concern itself - grew out of the frequently-made observation that epilepsy occurred in a certain personality type, i.e., the "epileptic personality." A consistency was noted by Clarke (1915) among most of his epileptic patients, that they were characterized by "eccentricity, supersensitiveness, emotional poverty, rigidity, and mental infantilism." Clarke became an influential advocate for his point of view. Owing in part to his influence, the literature on the "epileptic personality" grew.

A different line of investigation in the realm of the personality functioning of epileptics was simultaneously

developing in the psychoanalytic community. Begun by Freud (1950), but developed extensively by other analysts, this endeavor was to examine the apparent association of specific kinds of psychopathology with epilepsy. This was an outgrowth of the trend in psychoanalytic work at the time to extend the frontiers of the psychoanalytic method through treatment and through investigation into domains previously relegated to purely physical medicine. With this impetus, the psychopathology of epilepsy became a field that received much attention.

These two lines began converging as 1) research into personality traits throughout psychology began to become influenced by psychoanalytic thinking, and 2) psychoanalysts began to look more closely at research literature dealing with non-pathological aspects of personality functioning. There are thus no longer two separate literatures, one on epileptic personality traits and the other on the psychopathology of epilepsy. Rather they can both be subsumed under the general heading of personality functioning of epileptics.

It is this part of the interface between epilepsy and psychology - i.e., the personality functioning of epileptics- that has received the most attention in terms of the largest literature being developed. As a result, some conclusive data has been obtained; at the same time, many new questions and issues have been raised. It would seem appropriate to examine the work that has been done by investigators in this

area to determine what is known and what issues have been raised about epileptic personality functioning.

## Epileptic Personality Functioning

### Personality Functioning: Definition

The term "personality" is difficult to define in a way acceptable to all psychological investigators. In Allport's (1937) classic work, he found about fifty different definitions of the term as it has been used in various contexts. He himself was unable to arrive at an acceptable definition. In Hall and Lindzey's (1957) review of personality theories, they concluded that personality is best defined by "the particular empirical concepts which are part of the theory of personality employed by the observer." Since different theoretical approaches are taken by those who have discussed epileptic personality functioning, it seems appropriate to employ an eclectic definition here. One such definition is that personality refers to the configuration of characteristics which determine an individual's adjustment to his environment. These characteristics include such variables as intellectual abilities, interests and values, physique and temperament, motivational dispositions, traits, and pathological or maladaptive trends (Hilgard, 1957). By temperament is implied typical mood, as "sluggishness" or "irritability." Motivational dispositions are the individual's characteristic motives such as achievement, affiliative, and

dependency needs (conscious or unconscious). A trait is a behavioral style remaining consistent in different situations, as "selfishness," "talkativeness," and "attention-seeking." Pathological or maladaptive trends are those which limit adjustment to the environment, as excessive anxiety, over-dependency, and hyperactivity.

The term "personality functioning" deals with the presence of and relationship between these various personality variables. Thus, a discussion of "epileptic personality functioning" refers to such a discussion with reference to epileptic patients. Presently epileptic personality functioning will be discussed as it has been dealt with by researchers and theorists in the field.

## The Four Historical Phases in the Literature

Historically, the theory and research about epileptic personality functioning can be conceptualized as belonging to four phases. The first phase, which began around 1910, was typified by physicians' observations which led them to conclude that, in terms of personality functioning, all epileptics were very similar. Clarke (1915) was the major figure here, stating that all epileptics were characterized by "eccentricity, supersensitiveness, irritability, emotional poverty, rigidity and mental infantilism."

The second phase, developing in the 1930's, consisted of psychoanalysts' formulations about the unconscious motives

involved in the personality functioning of their epileptic patients (e.g., Menninger, 1926; Bartemeier, 1932). As in the first stage, the conclusion was made that all epileptics functioned similarly; but the similarity was in terms of unconscious motives - especially those of sex, aggression, and dependency - which expressed themselves in pathological ways, namely, through epileptic seizures.

The next phase began in the 1940's and extended into the early 1950's. It was an outgrowth of the previous phase, in that researchers used the Rorschach test to investigate the validity of the psychoanalytic formulations about epileptic patients' psychodynamic functioning (e.g., Lisansky, 1948). The major finding here was that epileptics function similarly to a wide range of neurotics; however, no specific "epileptic Rorschach" emerged.

The current phase of research began in the early 1950's. It has seen studies utilizing large numbers of patients, primarily children, and seeking to establish behavioral consistencies (rather than psychodynamic similarities) among epileptics. The major resulting finding has been that epileptic children are characterized by aggressive behavior which is present to excessive and maladaptive degrees (e.g., Henderson, 1955). During this phase, also, there has been an unsuccessful attempt to differentiate patients with the diagnosis "temporal lobe epilepsy" from other epileptics in terms of their behavioral patterns (e.g., Stevens, 1966).

Presently there will be a critical review of these four phases of literature on epileptic personality functioning. (Much of this literature is well-reviewed elsewhere, e.g., Tizard, 1962; Bagley, 1972. In its discussion of the last two phases of literature, the current review was guided by or derived from the Tizard and Bagley work.) As will be seen, developments in the current phase point to the need for new research in certain areas. The present study is an outgrowth of this need.

## The Literature Review

### A. Anecdotal Reports of the "Epileptic Personality"

The history of studies reported uniformly begins with reports characterized by data impressionistically gained from observations of epileptic patients, usually adults in a physician-patient treatment relationship. Attempts were never made to measure the traits referred to through a device such as a personality test or an outside observer. In addition, statistical estimates were seldom made of incidence of the given traits. The contention is often made that all epileptics function the same.

To begin with, Clark (1915, 1917), as mentioned earlier, formulated that all epileptics are characterized by the traits of "supersensitivity, emotional poverty, irritability, rigidity, and mental infantilism." This was based on impressions he gained from his practice as a physician in

treating and investigating institutionalized epileptics. In one reference to epileptic children, he referred to "excessive crying, insistence on having their own way, and abnormal personal attachment to the mother." Epileptics very much need to "grow up,"he asserted. Clark wrote a number of papers, and was the major proponent of the idea that an "epileptic personality" existed.

Notkin (1928) echoed Clark's formulation, with the proviso that the epileptic personality only appeared if the onset of seizures was prior to age 12. Otherwise, no such tendencies need develop. He based his conclusions on a survey he made of a number of epileptics.

Supporting Clark's reference to immaturity, Wiersma (1923) said that epileptics are, compared to normals, more stubborn, irritable, absent-minded, and nonactive. They have a tendency to repeat the ideas of others, to talk about themselves, and are vain, egotistical, and flatterers. These were general impressions from wide experience with epileptics.

While these authors emphasize immaturity, aggressiveness was the focus of a number of other formulations. Baker and Traphangen (1936) asserted that epileptic children are "unstable emotionally, anti-social, vicious, destructive, with temper tantrums." The source of this formulation is not stated in their book. Bleuler, too (1960),referred to "moodiness, outbursts of temper, cruelty," while also noting "sensitivity, rigidity, pedantry, and perseveration." And

Sullivan and Gahagan (1935) cited "cruelty, mischievousness, rebelliousness, destructiveness, and stubbornness."

There is thus agreement by some on the importance of aggression in the epileptic personality makeup; and by some on the presence of egocentricity and immaturity, with specific reference by Clark to excessive dependency. These consistencies are interesting to take note of. These formulations were, however, based on clinical impressions, with no attempts made to define operationally the variables referred to, with the infrequent presentation of statistics on incidence of traits, and no formulations ever put to an experimental test (i.e., they were all ex post facto formulations). Also, the various formulations were not very consistent with each other. Thus, there are some suggestive leads about personality traits of epileptic adults, but this phase of investigation of epileptic personality functioning ended with a clear need to gain supportive data via experimental tests.

B. Psychoanalytic Studies of Epileptic Psychodynamics

The next phase in the development of the literature saw psychoanalysts viewing epileptic seizures as neurotic symptoms (although usually involving a predisposing physiological pathology). These investigators sought to define the unconscious motives or dynamics which were expressed in epileptic seizures. For the most part, the data consisted of case studies by these analysts.

Conflicts over aggression were cited by several authors as the unconscious determinants of seizures. Freud's work, Dostoevsky and Parricide (1915) - which contained an attempted analysis of Dostoevsky through his literary works - suggested that Dostoevsky's epilepsy stemmed in part from unconscious death wishes toward his father that could be expressed either in his literary work or in his seizures. Bartemeier (1932) cited two case studies to support the same conclusion that seizures could be traced ultimately to death wishes. Bartemeier again (1943), this time without citing specific cases, contended, from his experience with epileptic patients, that seizures are the "autoplastic discharge of aggressive tensions." Jelliffe (1935) reported his speculations based on cases reported in the psychoanalytic literature, that seizures are the "inhibited expression of aggression and sadism." And Kardiner (1937) discussing his observations in a paper on the "bio-analysis of the epileptic reaction," concluded that unconscious "anarchic aggression" is expressed in seizures.

Some analysts have discovered sexual impulses to be responsible for seizures. Menninger (1926) cited one case study in which "conflict over heterosexuality" was the seizure-causing issue eventually uncovered in the psychoanalysis of a patient. Hendrick (1940) cited a case in which "voyeuristic and masturbatory impulses" were being defended against unsuccessfully, to the point where the patient developed the symptom of epileptic seizures.

Others have linked dependency needs to seizures. Ribble (1936) cited two cases where the crucial issue was a wish to retreat to the safety of the immediate post-natal situation. Heilbrunn (1950) cited five of his cases of seizures in which "strong dependency needs, when overwhelming the ego, or when the threat to their gratification arises, are discharged motorically."

Finally, Barker (1948) cited one case of petit mal seizures in which he claimed to have discovered through psychoanalysis that the seizures were a defense mechanism, a way of avoiding threatening material in the analysis. This contrasts with other authors, who saw the seizures as symptoms, i.e. a product of both a defense and an impulse.

The psychoanalytic literature up to this point was uniformly characterized by the presence of data gained by the authors from small numbers of their own or colleagues' case studies, and is thus similar to data of the previous phase of research (on trait notions of the "epileptic personality"). And formulations, as previously, were sometimes inconsistent with each other. The differences between these two phases lay in the reliance of the psychoanalysts on formulations in terms of unconscious processes, as opposed to behavioral traits; and in the psychoanalysts' emphasis on pathological processes, as compared to the virtual neglect, or at least de-emphasis, of pathology earlier.

In summary of the literature up to this point, then, two

phases developed. During the first, workers contended that certain constellations of traits characterized "the epileptic personality." In the second, psychoanalysts sought to establish the existence of an epileptic psychodynamic pattern. These two phases provided valuable suggestive leads. It is quite noteworthy that in both phases an emphasis was placed by a number of authors on the role of aggression and dependency in epileptic personality functioning. However, it remained for the next phases to put these ideas to an experimental test.

C. Rorschach Studies of Epileptic Personality Functioning

This phase, developing mostly in the 1940's, saw an effort to test the previously-advanced psychoanalytic notion concerning the role of pathological dynamic processes in epileptic personality functioning. It saw the use of systematic studies utilizing the Rorschach test.

Altable (1947) administered the Rorschach to 30 epileptic children and found what she called a "characteristic picture" with three features: 1) deficient intellectual control over affects and instinctual impulses; 2) anxiety, aggression, and oppositionalism; 3) slowness of response. Zimmerman (1951) studied 100 cases of symptomatic epilepsy in children and found through the Rorschach a high degree of "personality deviation," which is generally defined in Rorschach methodology in terms of lability of affect or overconstriction, poorly integrated affects, and primitive

psychosexual content. Both studies involved epilepsy clinic populations. In neither case was there a statement of method of subject selection. The findings in both studies are of uncertain validity, however, given that control groups were not used.

Arluck (1941) tested the hypothesis that the Rorschach protocols of epileptics could be differentiated from those of non-epileptics. Using sixteen idiopathic epileptic adolescents, and matching them on sex, age, IQ, and socioeconomic status against controls drawn from the patients' siblings, cardiac patients, and their siblings, she found differences on the Rorschach indices of color shock, W responses, and response time. The first two of these signs, however, are felt to differentiate all psychiatric patients from normals, and the conclusion to be drawn from this study would seem to be that epileptic Rorschachs look like psychiatric patients' Rorschachs.

A similar finding was obtained by Piotrowski (1947) in another well-designed study. He matched 25 epileptic adults for age and IQ against 25 hysterics. He found 14 epileptic "signs," or indices, of which 80% of the epileptics scored more than 6, while no hysterics had more than 4. While there was no cross-validation done, a clear need in such an undertaking, it should be pointed out that the so-called "epileptic" signs overlap a great deal with "neurotic" signs previously developed by Piotrowski. Thus, the only conclusion

to be drawn from this study is that epileptics have similar Rorschach indices to neurotics, similar to the finding in Arluck's study.

The suggestion that Rorschachs of epileptics look like protocols from neurotics receives support from a study by Lisansky (1948), who matched 10 epileptic adults with 10 diabetic controls on age, IQ, and education. He found more of Piotrowski's "neurotic" signs in the epileptic protocols than on the diabetic ones, but no more "epileptic" signs on them.

Two studies using epileptic children give further support to this trend. Kogan (1947) matched 10 epileptic children with behavior problems with 10 non-epileptic children with behavior problems; they were matched on age, IQ, and severity of behavior problems. A wide range of psychological disturbance was represented, from highly constricted and shy children to aggressive, destructive patients. On a set of Rorschach indices, no differences could be found between the groups. Shaw and Cruikshank (1957) compared 25 institutionalized epileptic children with 25 similarly institutionalized but non-epileptic children. They were matched on age, sex, and IQ. Minimal differences were seen on Rorschach signs.

Thus, on the well-controlled Rorschach studies, a consistent pattern emerges with epileptic children and adults. Their Rorschachs look similar to those of psychiatrically- or behaviorally-disturbed individuals, but different from those of either normals or cardiac patients. Even though one

should keep in mind the misgivings expressed by some about Rorschach scoring reliability (e.g. Fiske, 1959) and the test's validity as a diagnostic tool (e.g. Wittenborn and Holzberg, 1951), this data reinforces the ideas put forth by the psychoanalysts of the previous phase of inquiry into epileptic personality functioning: that maladaptive or pathological trends characterize epileptic patients. However, the findings alluded to previously (in the "epileptic personality" and "epileptic psychodynamics" studies), findings concerning the pre-eminence of aggressive and dependency motives and traits, did not seem to emerge in the Rorschach studies. However, in the current phase of research these specific motives and traits have been found to be characteristic of epileptics; this is likewise true concerning the presence of pathological trends. Thus, the current phase, which will be discussed presently, confirms some of the findings of the previous phases.

D. Behavioral Trait Studies of Epileptic Children, and the "Temporal Lobe Hypothesis"

For the most part, studies of the current phase continue to use large numbers of subjects and to define the variables under question in operational terms, rather than relying on case study data. The emphasis continues on pathological trends. However, there has been a move away from intrapsychic, unconscious motivational aspects of personality functioning to an assessment of behavioral traits. Also,

there is no attempt being made to differentiate epileptics from any other population. The basic strategy of investigation is to ask: Given the population of epileptics, what pathological traits seem to predominate? Children are now studied considerably more than adults (reversing the previous emphasis on adult samples), as measures of pathological behaviors (such as overly aggressive behavior toward peers in school) are more readily available with them.

At the same time, some researchers have until recently made an effort to differentiate temporal lobe epilepsy (the re-classification of epilepsy into categories based on seizure type, which was referred to in an earlier section, only came into effect in the last several years) from other sub-groups according to the amount and kind of pathological behavior seen. This is the so-called "temporal lobe hypothesis," and will be considered separately after a review of literature concerning the question of pathological behavior without regard to diagnostic sub-groups.

Bridge (1949) looked at the incidence of personality disorder in epileptic children. Making judgments from case records of over 700 patients drawn from a general hospital neurology clinic, he concluded that 46% of the sample had mild to severe disorders, characterized by, among other symptoms, insecurity, dependency, antagonism, resentment, temper tantrums, destructiveness, and anxiety. Taken alone, this study is only suggestive, due to the failure to define

these symptoms more objectively than simply by the investigator's judgment.

An objective measure was used by M. Eysenck (1950) in her study of 45 adult epileptic patients. Norms are established for the test (the Maudsley Personality Inventory). Eysenck could thus conclude that epileptics were significantly more "neurotic" than the population average, given their lower-than-average scores on the test. However, "neuroticism" as defined on this test is too broad a variable for these findings to further the understanding of epileptic personality functioning beyond pointing once again to the presence of pathological trends.

Henderson (1953) used the variable of "bad behavior" (including "violent destructiveness," refusal to comply with teachers' orders, quarrelsomeness, and bad-temperedness) in his study of emotional disturbance in a large sample (430) of epileptic children. In carefully examining their school records and home behavior, he found a 12% incidence of "bad behavior" based on teachers' and parents' observations.

This finding of maladaptive aggressive and stubborn behavior, echoing with a better-defined criterion the finding of Bridge, is supported further by Halstead's (1957) investigation of 136 epileptic children. As Henderson had done, Halstead used parents' and teachers' observations of home and school behavior. He found 51% of the children were "badly" or "negatively" behaved: violent, badtempered,

insolent, sullen, moody, and immature.

Pond, Bidwell, and Stein (1960) supported this trend in the literature somewhat with their finding that 29% of 100 epileptic children and adults drawn from general practitioners' cases had a "psychological disturbance," in the physicians' judgments. This did not include only overly-aggressive behavior; the numerical breakdown reported included "neurosis - 34; behavior problems - 14; epileptic personality - 11." These terms are not defined, however. The conclusions of this study need to be tempered additionally, due to the fact that 14 different physicians were surveyed, each potentially with his own standards for judging psychological disturbance.

Being high-strung, irritable, and quick-tempered were said to be traits of 25% of the large (1200) sample of epileptic children and adults surveyed by Lennox and Lennox (1960). Their findings support the trend toward seeing aggressiveness in some form as prominent in epileptic personality functioning.

Another study suggests the prominence of pathological trends in epileptic personality functioning (Guerrant, et al., 1962). Matching two groups of 28 epileptic adults with one group of 26 chronically-ill non-epileptic patients on age, sex, and duration of illness, the investigators found 90% incidence of "emotional disorder" in all 3 groups. An important design feature of this study is that it utilized a

rating team of 6 observers to make judgments of psychiatric functioning.

These studies all taken together support two ideas that historically have consistently been advanced in the investigation of epileptic personality functioning, namely, that pathological trends and/or aggressiveness tend to characterize epileptics. In all of these studies, either one or both of these attributes - usually in the combined form of pathological, over-aggressiveness - appeared in from 12% to 90% of the usually very large sample studied. In 2 studies, these attributes appeared in statistically-significantly different degrees among epileptics as compared to norms or control groups. Thus, these assertions regarding epileptic personality functioning seem to have a good deal of support now. More confidence could be placed in this conclusion, to be sure, if the research designs of the above studies all utilized operational, or at least more explicit, definitions of the variables studied. Control groups, also, should have been used more, to compare incidence of aggressiveness and/or pathological trends among epileptics with that of the population-at-large. To counter the argument, however, that it has not been demonstrated that aggressiveness or pathological trends characterize epileptics any more than the general population, four points can be made: 1) In the Rorschach studies of the previous stage, and in 2 of the current studies, control groups <u>did</u> reveal either

differences from normals or important similarities with identified maladjusted populations. 2) The findings of 12-90% incidence of pathological trends (often pathological aggressiveness) far exceeds generally established levels for this variable (Miller, 1971). 3) The investigators themselves, many of whom had contact with the general population of, say, school children, strongly felt that the epileptics studied differed from the norm on the variables in question. 4) There is a historical consistency to these ideas, spanning 50 years and four different kinds of research into epileptic personality functioning.

Thus, there is a fair amount of support for the contention that epileptics tend to be characterized by aggressiveness and pathological trends. Recently, research into epileptic personality functioning has moved into at least one new area: Hartlage, Green and co-workers have focussed on the variable of overdependency in epileptic children. In a series of studies, to be described below, these investigators established that epileptic children are considerably more dependent than other children, to the point where it can be considered pathological.

Overdependency was a neglected variable in the most recent phase of research into epileptic personality functioning, even though it was referred to previously in the early trait notions of the "epileptic personality," as well as in the psychoanalytic notions of the "epileptic psychodynamic

pattern," as described above. In fact, it was referred to by Bridge (1949) and Halstead (1957) as characteristic of some of their subjects. Investigators of epileptic children of the past 20 years, however, have tended to focus on obvious pathology (e.g., misbehavior in the classroom); the pathology of dependency is not so easily observed. Yet, judging from a study of epileptic children's own feelings about having epilepsy, the excessive need for help from others and lack of independence are a focus of their own complaints about being epileptic (Carter, 1947).

In summary,overdependency has been an important trait historically associated with epilepsy in the literature. It is a focus of epileptic children's complaints, and it is a previously neglected but apparently new and promising direction for research. It therefore seems appropriate to examine overdependency in epileptic children in greater detail.

## Temporal Lobe Hypothesis

Before undertaking an examination of overdependency in epileptic children, however, there will presently be a review of studies which have concerned themselves with the "temporal lobe hypothesis." As stated earlier, this contention, that epileptics who show a focus of EEG aberration in the temporal lobe are more prone to maladaptive personality trends than other epileptics, has interested a number of researchers in recent years. Interest in temporal lobe

epilepsy grew sharply around 1950 with advances in EEG techniques which established more clearly the existence of this diagnostic entity.

Pond (1952) and Hill (1952) reported their clinical impression of epileptic children, that only temporal lobe (TL) children are characterized by bad temper, antisocial behavior, egocentricity, and violently aggressive behavior. According to Pond, petit mal children display neurotic symptomatology, instead.

Robertiello (1953) described his clinical impression of TL children from his private practice as that of quietness, overcontrol, and shyness. Excessive outbursts of anger only occur when the control mechanisms break down, he stated.

Glaser and Dixon (1956) reported 72% of TL children who were patients at a general hospital were psychiatrically disturbed. They showed a pattern of aggression, temper tantrums, hyperactivity, and irritability. Davis (1959), although he did not specify the source of his patients, stated that a significantly large number of TL epileptic children displayed an "explosive" behavior disorder.

Common to all of these reports were a number of features. They all utilized either clinical impressions or other non-explicit definitions of the alleged TL-specific behaviors or pathologies. They all lacked, with one exception, a numerical or statistical representation of the data. And they all lacked a comparison with control groups (except in a loose

sense in the case of Pond and Hill).

Only one study which meets these objections has been reported in support of the TL hypothesis. Nuffield (1961) compared "aggression" and "neuroticism" scores as derived from a questionnaire administered 233 epileptic children who were divided into 7 groups on the basis of EEG focus. The TL group had significantly higher aggression scores than any of the 6 other groups, and significantly lower neuroticism scores.

However, this finding has completely failed to stand the test of later studies. Parsons and Kemp (1960) found that 15 TL adults showed no MMPI differences from 15 non-TL patients matched for current age and age of onset of seizures. Guerrant (1962), in a study referred to above comparing a group of 28 TL epileptic patients with 28 grand mal epileptics matched for sex, current age, and seizure onset age, found no difference in degree of "disordered emotional functioning" between the groups. Although this term is not explicitly defined, the measurements were carried out by a team of psychiatric observers.

Small, et al. (1962), in a well-designed study in which psychiatric raters were kept unaware of the patients' diagnoses, compared 25 TL adults with 25 petit mal adults on a number of specific psychopathological manifestations (including anxiety, aggression, and schizoid traits). There were no differences between the groups.

Juul-Jensen (1964), in a provocative study comparing 221 TL epileptics with 694 cases of other types of epilepsy, found at first that the former group showed difficulties in social adjustment in 60% of cases, compared with 35% of the latter cases. However, when he matched the groups on severity and frequency of seizures, the differences disappeared.

In a similarly obtained finding, Stevens (1966) studied the risk of psychiatric hospitalization of TL vs. non-TL patients in a sample of 100 random adult cases. Although the TL group had a higher risk, matching the groups on age eliminated the differences. Stevens explained the initial difference to be a result of the coincidence that the general population reaches peak vulnerability to both TL epilepsy and psychiatric hospitalization at the same age.

Wilson and Harris (1966) randomly selected 83 children at an epilepsy clinic. In the examination of case records for "behavior disorder," (aggressiveness, irritability, impulsiveness, running away), no differences were obtained between TL, focal, and petit mal epilepsy.

Thus, 6 well-designed studies fail to confirm the TL hypothesis, as compared to 1 well-designed study and 5 loose, impressionistic accounts that support it. It would therefore seem that the TL issue has been settled, and, in fact, no serious attempts to test it have appeared recently. Interestingly, this is consistent with the abovementioned move away from the traditional classificatory system which

included TL epilepsy as a specific diagnostic entity.

An interesting and noteworthy conclusion that can be drawn from 3 of the TL studies (Parsons and Kemp, Guerrant, and Juul-Jensen) is that age of onset, severity, and frequency of seizures are relevant variables, even if medical diagnosis (in the traditional system) is not. These studies showed that "emotional disorder," "social adjustment," and MMPI scores were similar among patients when the seizure onset and type variables were controlled for. Clearly, then, future research on epileptic personality functioning needs to take a look at these variables. Even in the medical world, the recently adopted taxonomic system is based on seizure type, relegating EEG's and etiologic considerations to second place (Gascon, 1973).

This completes the literature review of epileptic personality functioning through its various phases. As was seen, the literature began with trait notions of the "epileptic personality," continued with studies of the "epileptic psychodynamic pattern," was developed further through Rorschach studies of epileptic psychopathology, and is presently concerned primarily with pathological behavior of epileptic children.

These present concerns in the literature were explored in detail in the preceding section. As was discussed there, the further investigation of <u>overdependency in epileptic</u>

children seems especially appropriate. The current study seeks to pursue such an investigation. Before defining the specific problems to be explored in this study, there needs to be at the outset a discussion of overdependency in children from an empirical and theoretical viewpoint. That is, what need to be discussed first are questions as, how is dependency defined and measured; what is overdependency, and what are its implications for an individual's adjustment; what, theoretically, are the causes of overdependency, what is actually known about its causes? Then, what needs to follow this discussion is an exploration of the specific problem of epileptic children's overdependency. After this, the hypotheses to be tested in this study will emerge.

## Overdependency in Children

### Dependency: Theoretical Status

Before discussing overdependency, there needs to be an initial discussion of dependency. One definition of dependency has appeared in the psychological literature in the context of psychoanalytic literature, where it denotes internal motives, needs, or feelings. These include the feeling of helplessness, the need for affection, and the need for praise and approval (Fenichel, 1945). The concept has also been used in the context of social learning theory and literature to refer to external behaviors and activities aimed at obtaining help or assistance from another toward some end-goal

(Bandura, 1962). Most researchers and theorists utilize one or the other of these, seldom both. However, Heathers (1955) incorporated both definitions, and speculated about the relationship between them. He distinguished two kinds of dependency, viz., instrumental dependency (ID), which refers to the seeking of help from another toward some end-goal, e.g., being fed; and emotional dependency (ED), which refers to the seeking-out of another person's responses as an end-goal in itself. In this sense, ED is subdivided into the needs for affection, approval, and praise, so that whereas ID refers to the seeking out of another individual toward the attainment of some other goal, ED is the seeking out of another individual as a goal in itself.

Heathers theorized that ID is the dependency which is originally present in the various developmental stages. It is present in the total helplessness of the infant to gratify its needs for nourishment, shelter, and relief from pain. Responses such as crying are manifestations of ID in the service of obtaining such gratification. ED, on the other hand, develops through an associational process whereby responses of the gratifying adult which are concurrent with the need-satisfying events acquire secondary reinforcing value. Thus a mother's caresses, after occurring together with feeding a number of times, become sought after for themselves; this is the need for affection. Because of this ability to reconcile the two different concepts of dependence, viz., the

psychoanalytic and the social learning theory definitions, it is Heathers' construct of ID-ED which will be implied whenever the term is used.

## Overdependency in Children: Definition

Overdependency is defined as a degree of dependency that is inappropriately high for a child's age. An underlying assumption of this definition is the one made by developmental theorists, viz., that children undergo a process of diminution of dependency as they grow older (Maccoby and Masters, 1971). Most theorists consider dependency in one area being given up for dependency in another area. For example, at a certain age a child will ask for help tying his shoelaces, but not with writing, because he has not begun school at this point. Shortly after this age, after beginning school, he will have learned to tie his shoelaces without help, but will now be dependent in a new area, that of learning to write. Similarly, after learning how to write without help, he might then exhibit a new dependency behavior, such as asking for directions in walking home alone (whereas previously a bus or his mother took him). Another way this process manifests itself is in the child's "graduating" from asking for help solely from his parents on a given task, to asking other adults he is acquainted with (such as a teacher), to asking adults he is unacquainted with (such as the principal or a policeman). These developmental changes are said

by some to be primarily internally motivated or influenced, in the manner of biological growth (Erikson, 1950; White, 1973). Others assert that these changes are primarily environmentally determined, being contingent on external reinforcement patterns (Maccoby & Masters, 1970). Overdependency is thus definable more accurately as dependency manifesting itself in tasks or areas of functioning to a degree that is inappropriate for the child's age, but which may well be appropriate for a younger child.

Measurement of Overdependency

Hence, to measure overdependency it is necessary to utilize potentially dependency-arousing tasks or behaviors that are age-appropriate. The child's performance on these tasks can be compared to a norm, or the performance of an experimental group can be compared to that of a normal control group. (It should be pointed out that this is the same strategy utilized in measuring children's dependency which falls within normal limits, as opposed to overdependency.) Some examples are as follows.

In a study involving preschool children (Maccoby & Masters, 1970) subjects were observed in a free play situation. The sooner the child asked an adult for directions regarding what to do, as opposed to continuing to play on his own, the higher the dependency score was. Children in, e.g., the top 10% of the sample could be considered

overdependent in this study, although a criterion was not specified. Studies have been performed with older subjects in which the experimenters instruct their subjects to work on a set of puzzles, including such tasks as simple mazes and jigsaw puzzles. The degree of dependency is determined by the length of time elapsed when the child ceases to work on the puzzles by himself and instead asks an adult for help. Slightly older schoolchildren (aged 8-12) have been tested by the Children's Dependency Scale (CDS - Golightly, et al., 1971), which is a self-administered true-false test asking age-appropriate questions about a diversity of feelings and behaviors (e.g., "I like to have my mother hug me a lot"; "I go downtown by myself."). In one study utilizing the CDS with a group of epileptic children, overdependency was determined by the appearance of a significant difference in the age-mean score of the sample as compared to the mean of a control group of non-epileptic children (Hartlage & Green, 1972).

Overdependency as a Maladaptive Trend

Overdependency in a child is considered by most clinicians, personality theorists, and developmental researchers to be pathological or maladaptive. A number of reasons are given. First, an overdependent child is unable to receive the gratifications and reinforcements appropriate for his age. Rewarding social interactions and academic achievements

can be severely curtailed in the child who seeks attention, reassurance, and assistance more than his peers (Bandura, 1962). And the achievement of efficacy and competence in regard to environmental interaction requires constant relinquishing of dependent behaviors (White, 1973).

Second, it is a tenet of psychoanalytic theory that for each stage of development to be successfully attempted and mastered, the previous stage must have been dealt with successfully (Erikson, 1950). The failure to accomplish early developmental tasks leads to a pathological outcome at all later stages. An overdependent child that has failed to master the earliest phase of development (the oral stage), is likely to experience difficulty with all later stages.

A third reason that overdependency in children is considered maladaptive is that, according to psychoanalytic thinking, overdependency often provokes a secondary pathological manifestation concurrent with the overdependency itself (Fenichel, 1945). Due to the frustration and low self-esteem caused by overdependency, a child's anxiety and aggressiveness may become so high as to interfere with successful adaptation and future psychological development.

Given that overdependency in children is a measurable variable that has important ramifications in personality functioning as a maladaptive trend, research into its prevention is clearly a necessity. To the extent to which one is committed to an understanding of etiology prior to

developing a program of treatment, there arise questions concerning the causality of overdependency.

## Antecedents of Overdependency in Children

### Theoretical Overview

In this section, the causality of childhood overdependency will be discussed from a theoretical and empirical viewpoint.

From the standpoint of psychoanalytic theory, dependency is a feature of the oral stage of psychological development (Brenner, 1957; Fenichel, 1945). Overdependency at any later stage usually implies either the failure to move beyond this stage (fixation), or a return to this stage in the face of difficulty encountered in dealing with another stage (regression). (See Freud, 1920, for a discussion of the concepts of fixation and regression.) Dependency is the important issue at this stage due to the fact that the infant is totally helpless at first to satisfy any of its needs, and consequently requires the assistance of a mothering object. Needs ministered to by the mothering object include the needs for food, for shelter, and for the relief from pain. There is obviously a need for a caretaking relationship with another if the infant is to survive.

For the infant to move comfortably on to the next stage of development, which (within the framework of psychoanalytic ego psychology)involves taking initiative and developing a

sense of autonomy (Erikson, 1950) - i.e., the first move away from dependency - it must not be fixated in a major way at the oral stage. If it is, two related results will ensue. First, the individual, later in life, will psychologically be preoccupied with reliving that stage of development. This preoccupation is at an unconscious level. Behaviorally, it might show through inappropriately seeking others' assistance in a wide range of situations. On another level, the result might be the search for early maternal gratification symbolically through the "hunger" for affection, approval, and reassurance. Second, the individual will have difficulty mastering the tasks of later development, since to master them requires a firm foundation at earlier stages, oral included. Consequently there will be a disruption throughout psychological development. This building-block, or epigenetic, theory predicts that the earlier in the individual's development the fixation occurs, the more damaging will be the results. The closer to the "foundation" the weakness is, the more the "upper stories" will be affected. Erikson (1950) elucidates this point well.

Fixation at the oral stage, as at any stage (Fenichel, 1945), results from either over-frustration (actual or threatened) or over-indulgence during that stage. The first, over-frustration, can occur in a number of ways. One important way can be via a threat to the infant's ever-developing "executive functions of the ego" (Rapaport, et al., 1968).

These functions at this age include the motoric capabilities to emit appropriate sounds, including crying and rudimentary talking, to crawl and sit up, to handle a spoon, to walk, and so forth. At this age these functions are crucial as instrumental responses to induce the nurturing object to minister to its needs during the first few years. The threat to, or actual impairment of, motoric or physiological capabilities can thus result in oral fixation and, consequently, later overdependency.

Over-indulgence, the second cause of fixation at the oral stage, is defined as excessive gratification by the mother. The infant's need gratification can be supplied by the mother beyond the point where he is ready to begin to learn to gratify some of his own needs, or at least to assume a larger role in the need gratification process. This overgratification by the mother can occur across a wide range of situations: for example, late weaning, slow toilet-training, or handing objects to the infant that he can reach himself. Overindulgence also is damaging to ego development in general. The ego develops as the individual encounters the need to cope with the frustrations imposed on him by reality. Maternal overindulgence shelters the child from these frustrations, and this results in interference with the development of his coping skills.

Dovetailing with overindulgence can be active discouragement by the mother of steps the infant does make

toward autonomy and self-gratification. Examples of this are overrestriction of exploratory behavior, excessive shielding from potential frustration and harm, and overcontrol of social interaction. These aspects of maternal behavior - all of which, according to psychoanalytic theory, tend to encourage oral fixation - can loosely be grouped under the terms over-protectiveness and overrestrictiveness. They will be referred to thusly throughout this study.

While the above discussion is concerned with the possibility of childhood overdependency being the result of oral fixation, another possibility is that the overdependency represents a return to the oral stage in the face of later difficulties at another stage. That is, it can represent an oral regression. Many different kinds of difficulties can be responsible for regression to an earlier stage. Two such problems can be the same ones described earlier in connection with fixation, i.e., a) a threat to the ego's executive functions, and b) maternal overindulgence. These two factors require discussion in more detail.

First, a threat (real or imagined) can occur to the executive functions of the ego of the child, including his motoric, intellectual, and physiological functions. These functions become increasingly important as the child becomes more mobile and interacts to a greater degree with his environment (Erikson, 1950). Ego psychoanalytic writers such as Hendrick (1942) and White (1973) stress the importance in

child development of motives of mastery and competence in dealing with the environment. These motives lean heavily for their fulfillment upon the presence of adequate physical and intellectual functioning. A threat to this functioning can thus lead to the child's regressing (as can any threat to developmentally-appropriate behavior, according to Fenichel) to an earlier, but less stressful stage, where he can rely more on others to attend to his needs.

A second source of regression can be a change in the mother's behavior toward the child. For example, the mother may move from the stance of encouraging autonomy, exploratory behavior, and interaction with the environment to the over-protective and overrestrictive behavior referred to above. It is quite possible that the child will respond to this as a sign that he is not quite ready to accept the independence which has characterized his behavior until this point. With this "vote of no confidence" the child is likely to revert to the behavioral patterns with which he feels less threatened, especially those behaviors which receive maternal acceptance; i.e., more dependent behavior.

The above analysis of the antecedents of overdependency in children has confined itself to the processes of fixation at or regression to the oral stage of development. One other possible antecedent involves the process of <u>identification</u>, specifically, sex-role identification. In psychoanalytic theory, part of the resolution of the Oedipus complex in

children consists of identification with the like-sexed parent. I.e., the child takes on behavioral patterns, characteristics, and traits of this parent in order to resolve an emotional crisis (Freud, 1903). This is the mechanism by which cultural sex-role patterns are transmitted to the individual. Dependency, it is generally accepted, is culturally more characteristic of females. Thus, psychoanalytic theory holds that, after resolution of the Oedipus complex, girls become more dependent than boys. (This occurs at approximately age 5.) Overdependency will result if the girl's mother is herself overdependent; the girl will tend to identify with the mother without regard to the appropriateness of her behavior.

Although the identification process begins prior to the outset of latency (this stage occurs approximately between ages 6 and 11), it levels off once this stage begins, but then increases once again with approaching adolescence. However, the degree of dependency, as opposed to the degree of identification, actually <u>decreases</u> during latency, rather than remaining stable or slowly increasing in the manner of identification. This is due to the operation of another developmental factor. This factor is the strengthening of motives of <u>competence</u> and <u>mastery</u> vis-a-vis interaction with the environment (Erikson, 1950; White, 1973). If the child is to become more competent, effective, and mastering, he must <u>give up</u> many dependent behaviors. In addition to this,

what can often happen to increase even further the reduction of dependency is that the push to competence and mastery can be so great that the child rejects the dependent role even in those situations where he clearly requires help. He tries to do things on his own, just for the sake of "doing it by myself," even if he cannot do them by himself.

This rejection of dependency even in situations where it is appropriate will be referred to here as "counter-dependency." This is a product of normal development. It should not be confused with the pathological process, usually identified in adults rather than in children, whereby the individual shows a general tendency to flee from his dependency needs by behaving independently to an excessive degree, or by gratifying another individual's dependency needs instead of his own.

## Research Findings

The above discussion suggests a number of areas for research. A review of the literature (Maccoby & Masters, 1970) reveals that some have received more attention than others. In the area of sex differences, a number of studies have found girls to be more dependent than boys (Mischel, 1970). For example, in one, 8-12 year-old children were administered the Children's Dependency Scale (Golightly, et al, 1970). Girls scored significantly higher on this measure of dependency than did boys.

In reference to the suggestion that maternal overprotectiveness and overrestrictiveness lead to overdependency in children, a number of studies have borne this out. In a large sample (328) of grade-school children, Watson (1957) found high dependency - as measured by behavioral observations and projective tests - to be correlated with high maternal restrictiveness, as measured by a self-rating scale. In another study, children raised on a highly-structured and restricted kibbutz were significantly more help- and attention-seeking than children raised in a more permissive kibbutz (Faigin, 1958). Smith (1958) measured maternal overprotectiveness with the Parental Attitude Research Instrument and found it correlated with children's submissiveness and approval-seeking as measured by interviews with parents. Winder and Rau (1962), McCord, et al. (1962), and Finney (1963) obtained similar results.

Research has appeared which deals with the theoretical suggestion that a disruption of or threat to the development of the child's executive functions of the ego is likely to lead to overdependency, or, at least, psychiatric problems in general (e.g., Meadow & Schlesinger, 1971). This derives from the theoretical contention that real or threatened impairment to physiological, motoric, or intellectual capacities of the child will handicap the development of his independence, competence, and efficacy in interaction with the environment. Since such development is necessary if the child is to move

away from the oral stage of dependency, such an impairment will tend to result in oral fixation and later childhood overdependency. Another study that is relevant here was carried out by Hartlage and Green (1972b). Using the Children's Dependency Scale, they showed that a sample of epileptic children was considerably more overdependent than a sample of cystic fibrotic children. If one considers that epileptic seizures involve a more nearly total loss of control of the executive functions of the ego than does cystic fibrosis, there is tentative confirmation of this hypothesis. What would be indicated for further research would be a test of the prediction that the degree of loss of control of functioning - i.e., the severity of seizures - is correlated with the degree of overdependency.

In addition, the age at which the impairment to ego functions begins should be related to the degree of later overdependency; the earlier the impairment, the greater the degree of future disruption, as was stated earlier. Neither of the above studies deals with this question; it should be an area for further investigation.

## Antecedents of Overdependency in Epileptic Children

In this section the theoretical discussion of antecedents of overdependency in children will be related specifically to epileptic children. To do this, epilepsy will be looked at from three standpoints: as a loss-of-

control experience, as a handicap, and as an influence on maternal child-rearing practices. From this discussion will develop testable predictions of relationships between over-dependency and the antecedents discussed. These will then be examined in light of the research reviewed in the previous section to determine what work needs to be done in this area.

It should be noted at the outset of this discussion that the direction of causality between overdependency and epilepsy is open to question. Does the experience of having seizures, as well as the effect they have on the mother, result in the child's overdependency (as this study implicitly purports)? Or do overdependent children, given the opportunity through neurological predisposition, develop seizures for the secondary gain of being taken special care of and being sheltered from frustrations they might otherwise have to deal with individually? Or do both processes take place at the same time? This point is being made simply to take note of a problem to be kept in mind when considering epileptic children's overdependency. There seems no way to solve the problem, since it is a "chicken-or-the-egg" matter.

## A. Epileptic Seizures as a Loss of Control

Perhaps the most prominent feature of an epileptic seizure is the loss of control, both phenomenologically and behaviorally (Lennox & Lennox, 1956). Despite the diversity of phenomena classified as epileptic seizures, one common

feature is loss of or disturbance of consciousness, and consequent disruption of ongoing behavior (Gascon, 1973). One can be struck down by forces seemingly outside oneself. The disruption of consciousness and of ongoing behavior by an unknown force reduces the child's sense of self-control and hence limits the development of feelings of autonomy, mastery, and competence to accomplish goals independently.

This directly affects the executive functions of the ego - the capacity, as stated earlier, to actually perform those behaviors "decided" on by the ego as a result of its various other functions. And this is an across-the-board, total disruption of all executive functions. That is, it is to be differentiated from a handicap such as cerebral palsy, where some (and perhaps most) motoric and intellectual functions remain. In addition there is always the possibility of substituting one or several functions for the impaired one. Although an epileptic child is almost never in a constant state of having seizures, the timing is usually quite unpredictable. Depending on the frequency of the child's seizures, he must constantly anticipate the possibility of a sometimes prolonged episode (especially considering the presence of commonly-encountered post-seizure debilitating effects as stupor, confusion, and sleep) of total disruption of his ability to carry out any interaction with, or even maintain awareness of, people or objects in his environment. As stated earlier, such a disruption in ego development can

be responsible for oral fixation or regression, and hence, overdependency.

If the loss-of-control experience and its attendant disruption of ego development is one of the mediating phenomena between children's epilepsy and their overdependency, several predictions follow:

Hypothesis 1.--The degree of resulting overdependency should be related to the degree of loss of control experienced (i.e., the severity of the child's seizures). Presumably, infrequent petit mal absences are less a threat to the ego's executive functions than frequent grand mal attacks.

Hypothesis 2.--The degree of overdependency should be related to the age of the child when seizures began, i.e., the onset age of epilepsy. As stated earlier, developmental disruption is more severe, theoretically, when the disruptive influence begins at a young age. It was noted earlier that in three studies (Juul-Jensen, 1964; Parsons & Kemp, 1960; and Guerrant, 1962) onset age and severity of seizures were controlled for, with interesting results (pp. 29-30).

## B. Epileptic Seizures as a Handicap

Another line of reasoning leads to the prediction that the degree of epileptic children's overdependency is directly related to the severity of their seizures. In the immediately preceding discussion, emphasis was placed on the very special nature of epilepsy in terms of the qualities of the experience

of seizures. But in more general terms, epilepsy is simply a handicap, and should have effects on children in common with other handicaps. Goldin (1972) provides an excellent discussion of the psychological effects of disabilities. Some of these, defined specifically in terms of the epileptic child, are as follows: The epileptic child knows he is "under the care" of a doctor. He usually relies on medicine (to control seizures). Seizures sometimes cause injuries, thus requiring additional medical assistance. And after a seizure the child often requires help in getting up, has to be taken from class, etc.

In short, the needs of an epileptic child for help (from other people or objects) are greater than those of a child with no handicap. The child cannot "outgrow" these needs as he can other dependency needs, such as needs to be taken care of by his parents. Epilepsy thus results in an enforced dependency. It would follow from the theoretical discussion of antecedents of overdependency that these handicap-linked needs will therefore lead to overdependency. That is, the epileptic child finds it difficult to think of himself as an independent, autonomous,mastering, and competent individual.

These handicap-linked effects of epilepsy presumably depend on how frequently a child has seizures and what kind they are. I.e., a child with frequent falling seizures will have check-ups more often with the doctor, will more likely

injure himself in falls, will more frequently need to be helped up from a fall; all of these he will experience to a greater degree than a child whose seizures consist solely of infrequent staring spells (Goldin, 1972).

Thus, if the handicap-linked effects of epilepsy are among the causal factors in epileptic children's overdependency, it would be predicted that the degree of their overdependency is directly related to the severity of their seizures. This is equivalent to Hypothesis 1 above.

C. Epileptic Seizures and Their Effect on Maternal Child-rearing

Theoretical and empirical evidence suggests that maternal overrestrictiveness and overprotectiveness lead to childhood overdependency. It has been suggested by many workers in the field, however (Goldin, 1972; Pond & Bidwell, 1954; Barsch, 1968; Bridge, 1949), that mothers of epileptic children tend to behave in just this manner, i.e., overprotectively and overrestrictively. According to these sources, whose data includes clinical impressions and anecdotes, these child-rearing practices develop in a number of ways.

One cause of such behaviors can be the mother's emotional rejection of the child who is seen as defective. Often this rejection is unconscious because of the guilt associated with it. The consequence can be a reaction-formation against this rejection, resulting in exaggerated "acceptance." This exaggerated response is demonstrated in

extreme closeness to the child, a closeness often accompanied by restriction of autonomy and independence. Another emotional response of the mother can be guilt over the presumed role of heredity or prenatal factors in causing epilepsy. This guilt can motivate self-punishment through the mother's sacrificing her own interests and activities for over-devotion to her child's welfare. Such over-devotion may often include over-indulgence and over-gratification of the child's needs. Another feeling of the mother may be her hope to compensate for the self-control lost by her child during seizures by being herself over-controlling and domineering in her relationship with her child. Mothers, too, are often aware of the not infrequent link between stress and seizures; in order to avoid the sometimes extreme unpleasantness evoked in her by her child's seizures, she may often decide to innoculate the child from stress by severely limiting his exposure to a wide range of potentially frustrating circumstances. (These shielding practices can, of course, also derive from mother's concerns about the unpleasantness and potential danger caused her child by virtue of his experiencing seizures. However, the clinical impression in this regard is that such child-rearing practices are usually carried out in excess of what can potentially benefit the child. See Bradley, 1947.)

If this overprotectiveness and overrestrictiveness is one of the causative factors in epileptic children's over-dependency, it would be expected that the degree of

overdependency is directly related to the extent to which these maternal behaviors prevail. In hypothesis form,

Hypothesis 3.--The degree of overdependency should be directly related to the degree of maternal overrestrictiveness and overprotectiveness.

Hartlage, Green, and co-workers have carried out several studies bearing on this hypothesis. In one (Green & Hartlage, 1971), they administered to a random sample of children from an outpatient epilepsy clinic the Vineland Social Maturity Scale. Their subjects scored low, compared to the norms, on subscales measuring independent, exploratory activity (Occupation, Locomotion, and Language Usage). The authors speculated that it was parental overprotectiveness and accepting attitudes and supersensitiveness to the children's needs that caused this, but had no measure of parental behaviors to substantiate this thinking.

In their next study (Hartlage & Green, 1972a), the same measure was administered along with the Parental Attitude Research Instrument (PARI), a survey of a wide range of parental child-rearing attitudes (to be described in detail below). However, the PARI subscales measuring overprotectiveness and overrestrictiveness correlated minimally with the Vineland subscales referred to above.

The third study by these investigators (Hartlage & Green, 1972b) used a measure of dependency (the Children's Dependency Scale) rather than social maturity, and sought

correlations between this and maternal child-rearing attitudes. While establishing that their random sample of epileptic children was considerably more dependent than a sample of cystic fibrotic and tonsillectomy patients, they also found that one overrestrictiveness-related subscale of the PARI - Suppression of Aggression - differentiated epileptic children's mothers from the others. However, there was no correlation between overdependency and maternal overrestrictiveness or overprotectiveness.

Thus, while lending support to the idea that epileptic children are overdependent, as well as the hypothesis that their mothers are overrestrictive, the Hartlage and Green studies have not supported the hypothesis of a causal link between these two variables. Thus, this hypothesis needs further testing.

One deficiency of the Hartlage and Green work was the failure to control for sex, IQ, and race in their sample. As discussed before, children tend to identify with the like-sexed parent. Boys might thus be less likely to respond to <u>maternal</u> overrestrictiveness and overprotectiveness than girls, and so the presence of both sexes in the sample might have been a confounding influence on the results. Also, a significantly greater proportion of epileptic children are mentally retarded than is the case with non-epileptic children (Gascon, 1973). Hartlage and Green did not eliminate retarded children from their sample. However, the Golightly

scale requires an ability to read and understand the questions. Therefore some children's difficulties in responding appropriately to the dependency measure may have confounded the results. In regard to race, it has been contended that the matriarchal family organization of many blacks leads to significantly different outcomes in personality development from those predicted within a psychoanalytic theoretical framework (Grier & Cobbs, 1967). These differences, then, may have interfered with Hartlage and Green's attempts to find a correlation between overdependency and maternal child-rearing practices. Thus, the hypothesis of a relationship between maternal behaviors and children's overdependency needs further testing with proper controls being placed on potentially confounding variables.

## Summary of Hypotheses

Three predictions have emerged with regard to the antecedents of epileptic children's overdependency. In summary, they are that overdependency will be:

1) positively related to the severity of seizures, since it would seem that, the greater the loss of control experienced by the child, the more debilitating the effects;

2) inversely related to the age of onset of seizures, since experiencing seizures at an earlier, more vulnerable stage in development will presumably have more serious effects; and

3) positively related to maternal overrestrictiveness and overprotectiveness, since these child-rearing practices, which the mothers of epileptic children seem especially prone to, promote overdependency in all children.

# CHAPTER TWO

## Experimental Procedure

### Considerations of Subject Selection

The late latency age range of 8-11 was selected, because this is an age when in normal development there is a consolidation of the move toward competence vis-a-vis environmental challenges, increasing interaction with peers, and the drive toward task mastery (Erikson, 1950). By its contrast with normal developmental processes, then, overdependency should appear clearly. I.e., it will be quite obvious when there has been a lag in development attributable to overdependency.

At least average intelligence is seen as a requirement for subjects. This is due both to the nature of the measures used (which require average intelligence), and to the expectation of a lag in emotional development associated with subnormal intelligence. For example, retarded children would be less likely to have achieved the normal degree of mastery skills, since the acquisition of these skills is a learning process based to some degree, as is any learning process, on level of intellectual functioning. They would therefore be more dependent than normal children their age.

The presence of another handicap in addition to epilepsy may introduce additional and confounding effects on

estimates of dependency. Sex is likewise a probably confounding variable, due to the previously cited sex-role typing which reinforces higher dependency in girls. It may be controlled by using subjects all of one sex (females are preferred on practical grounds because of their greater availability in the population from which subjects are to be drawn).

Commonly found differences in childhood overdependency between racial groups (e.g., Kluckhohn, 1952) suggest another consideration for control. Similarly, social class membership, while often linked to dependency, does not lend itself to strict control. However, the population of a clinic has some self-contained selection features, and a sample drawn from such membership would be expected to eliminate a large proportion of middle- and upper-class patients, who tend to seek private treatment.

Subjects

Forty 8-11 year old females participated. Each was currently or formerly a patient at the Seizure Unit of The Children's Hospital Medical Center, Boston. The first 40 patients who fitted the criteria for selection were chosen for the study. Their names were obtained from an alphabetical listing of Seizure Unit patients. As it turned out, the entire list was used in order to obtain the necessary number of subjects.

Selection criteria.--Subjects had to be at least of average intelligence. (This was ascertained from physicians' neurological evaluations.) They had to be free of any other physical handicaps, e.g., cerebral palsy, cystic fibrosis. Only white children were used. All of this data was obtained from medical records.

Subject solicitation.--For subjects who fit these criteria, their parents were sent a letter (see Appendix F) soliciting their participation. A week or so later a follow-up phone call was made to ascertain whether the subject could in fact participate and, if so, to make an appointment to be seen. All subjects who were mailed letters and were subsequently called agreed to participate. Some subjects who had letters sent to them were not asked to participate. These subjects either were close to the high or low limits of the 8-11 age range, or lived a great distance from Boston.

Subjects lived in the Metropolitan Boston area, ranging south to Falmouth and Attleboro, west to Grafton and Gardner, Massachusetts and north to Nashua, New Hampshire. Socioeconomically, subjects' families ranged from welfare cases to $20,000 per year income (see Table 18 in Results section), and from unemployed to self-employed businessmen. This sample had a large proportion of working class families, semi- and unskilled, with a smaller proportion of semi-professional and white-collar families; professional employment was almost nonexistent. Ethnically, the major extractions

in descending order were Irish, French, English, and Italian.

## General Procedure

All subjects were visited in their homes. Subjects and their mothers were told nothing more about the purpose of the study than they had already been told in the letter. Then the two dependent measures (instrumental dependency and emotional dependency) were administered to the subject, and one of the independent measures (maternal child-rearing attitudes) administered to the mother. If they were interested, the subjects' mothers were then informed in general terms about the purpose of the study.

The other two independent measures (seizure severity and onset age of seizures) were obtained from data in the medical record.

## Instruments of the Study

All of the measures used will be discussed presently; first, the dependent variable measures, then the independent variable measures.

### Dependent variables - 1) Emotional dependency (ED): Children's Dependency Scale

There is a dearth of acceptably valid and reliable measures of ED for children. In Green's (1967) and Fiske's (1971) reviews of dependency measures, there were virtually none for children, although several are reported for adults. Recently the Children's Dependency Scale (CDS) was developed

(Golightly, et al., 1971). It is a 65-item self-administered true-false test developed for 8-12 year olds, and is designed to measure both ID and ED. The items may be separated, however, into those focussed more on instrumental issues - "I tie my shoes by myself" - and those aimed toward emotional ones - "I like to have my mother hug me a lot." This scale has good test-retest and internal consistency reliability. It correlates with age and sex as expected (girls and younger children showing higher dependency), and correlates to some extent with teacher ratings of dependency. Also, the children of black tenant farmers who live in highly dependent fashion scored higher than other children, as predicted. The only drawback is that it is a new instrument; no independent reliability and validity studies have been conducted.

Of the 35 items on the CDS which are scored, 3 raters selected 23 of them which seemed better indicators of emotional dependency. Two-thirds agreement was required for inclusion, and in most cases 100% was achieved. The items selected are indicated in Appendix B.

The exact instructions given the Ss are in Appendix B. (Future reference to CDS scores will imply the use of this scoring system for emotional dependence, not the original set of 35 items.)

Dependent variables - 2) Instrumental dependency (ID): Anchor Referral technique

Instrumental dependency was measured by a modification of the Anchor Referral technique (Mostofsky & Green, 1966; Mostofsky, 1972). This measure relies on task performance by the subjects and actual interaction with the experimenter. Detailed description of the apparatus and procedure used is in Appendix A.

Briefly described, subjects were presented with a color matching task of fifty trials that at times required discriminations which most children are unable to make. However, the subjects could, on any trial, "ask for help" if they wished by turning over two stimulus cards which the experimenter provided for their assistance. The ID score was the number of times the subject sought help from the cards.

This task overcomes a limitation of many measures of ID, since no other individual is involved in the actual help-obtaining process. When others are involved, it often is impossible to decide whether the child wanted assistance in order to achieve another goal (ID) or for the signs of affection, reassurance, and approval given along with the assistance (ED). Although interaction with the experimenter is part of the task, the giving of social reinforcement - praise and approval, for example - is minimized. Also, it is a very appropriate task for latency-age children (the age of the subjects in this study), calling for a "test of skill"

as it does. Such skill and achievement will (presumably) be demonstrated by the child's being able to rely on his own resources to make a correct judgment rather than looking for help through an outside source.

(It is important at this point to note the relationship of AR to the CDS, and the relationship of each to the construct "dependency." AR is the measure of an actual task-directed dependency behavior. The CDS is a measure of a child's reported opinions about himself, i.e., it is "introspective behavior." Dependency is a global construct referring to a combination of feelings, perceptions, and actual instrumental behaviors. It should be noted that one makes something of a leap of faith in making the assumption that a variety of human response systems function in a systematic way. It is only an assumption that one can state the existence of meaningful relationships between "introspective dependency" and "task-performance dependency." Such relationships do seem to exist among human response systems. An excellent example of this is Witkin's research on field dependency (Witkin, 1962); among the findings there are that certain characteristics of subjects' perceptual processes correlate with aspects of their interpersonal behavior.)

Independent Variables - 1) Maternal child-rearing attitudes: Parental Attitude Research Instrument (PARI)

The measure of maternal child-rearing attitudes, the Parental Attitude Research Instrument (Schaefer & Bell,1958)

has a long history of profitable use. It has been used frequently for a wide variety of purposes, including research with parents of handicapped children (Thompson, 1959; Hartlage & Green, 1972a & b; Barsch, 1968). An excellent review and evaluation of it appears in Becker and Krug (1965). The reviewers find it to be a valid and reliable instrument.

The PARI is a 115-item questionnaire on which mothers indicate their degree of agreement on a 4-point scale with a wide range of statements about child-rearing and, to a lesser extent, their relationships with their husbands. An extra answer column was provided and labelled "in regard to children who have epilepsy" to allow mothers to respond differentially, if they wished, in regard to their epileptic child. (See Appendix C.)

The PARI is divided into 23 scales. The particular ones looked at were the ones labelled "Fostering Dependency," "Breaking the Will," "Suppression of Aggression," "Suppression of Sex," "Approval of Activity," "Equalitarianism," and "Encouraging Verbalization." They were chosen as the ones tapping the variables of maternal overprotectiveness (Fostering Dependency) and overrestrictiveness (the other six). These scales ask questions dealing with maternal behaviors in the realms, broadly speaking, of, respectively, sheltering, suppressing autonomy, restricting aggressive behavior, restricting sexual behavior, compelling a high degree of activity, accepting autonomy, and promoting talking about feelings.

Mothers also filled out a single-page questionnaire

labelled "Family Information" (Appendix E) which had 2 parts. The first dealt with demographic information such as age, income, occupation, etc. The second asked for the mother's memories about the seizures her daughter experienced in the first year of having them. It was an attempt to supplement medical record data, should the latter be incomplete.

Independent Variables - 2) Seizure Parameters

Age of onset.--This was obtained from the medical record, and was defined as the child's age in months when the first positively diagnosed seizure occurred.

Severity of seizures.--Two scales were constructed to measure this variable. 1) Frequency of seizures was scaled from 1 to 9 points,* as defined in Appendix D. This data was obtained from the medical record. 2) Type of seizures was rated on an ad hoc scale which appears in Appendix D. This scale ranged from 2-14, the high end of the scale indicating the most debilitating type of seizure, and vice versa. All data was obtained from medical records.

## Operational Predictions

Since the measures to be used in this study have now been defined, the hypotheses stated in the preceding section can be stated in the form of operational predictions:

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*A high number indicating a high frequency.

It is predicted that AR and CDS scores will be

1) positively correlated with the seizure frequency and seizure type scales;

2) negatively correlated with the age of onset expressed in months; and

3) positively correlated with the PARI scales Fostering Dependency, Breaking the Will, Suppression of Aggression, Suppression of Sex, Approval of Activity; and negatively correlated with the PARI scales Equalitarianism and Encouraging Verbalization.

# CHAPTER THREE

## Results

Data analysis utilized the Pearson product-moment coefficient of correlation. Utilization of this statistic requires symmetrical, unimodal data distributions. Thus, most distributions were normalized for data analysis, because some skew was frequently present.* Means, standard deviations, and ranges of all original distributions are given in Appendix G.

Hypothesis 1: Analysis of the results shows that the first hypothesis, that emotional dependency (ED) and instrumental dependency (ID) would be directly related to severity of seizures, was not generally confirmed. As Table 1 shows, neither aspect of seizure severity - type or frequency of seizures - correlated significantly with the ED measure (the Children's Dependency Scale -CDS). And only frequency of seizures correlated significantly in the predicted (positive) direction with the ID measure (the Anchor Referral - AR); type of seizures was not significantly correlated.

Hypothesis 2: Analysis of the results shows that the second hypothesis, that ED and ID would be inversely related to age of onset of seizures, was also unconfirmed. Table 1 shows that neither ED nor ID is correlated significantly with age of onset.

*See Postscript.

Table 1

Correlations between Dependency Measures and 1) PARI Scales and 2) Seizure Parameter Scales

| | Children's Dependency Scale | Anchor Referral | | |
|---|---|---|---|---|
| | Total Sample | Total Sample | Age Group 1 | Age Group 2 |
| **PARI Scales** | | | | |
| Fostering Dependency | .30* | -.01 | -.26 | .25 |
| Suppression of Aggression | .21 | -.11 | -.20 | .24 |
| Suppression of Sex | .27* | -.31 | -.49** | .18 |
| Breaking the Will | .19 | -.10 | -.38* | .38* |
| Approval of Activity | .04 | -.14 | -.44** | .23 |
| Encouraging Verbalization | -.24 | .42*** | .64*** | .14 |
| Equalitarianism | -.09 | .20 | .01 | .34 |
| **Seizure Parameters** | | | | |
| Type of seizures in the first year | -.10 | .04 | | |
| Frequency of seizures in the first year | -.05 | .37** | | |
| Onset age of seizures | -.09 | .03 | | |

*p < .10
**p < .05
***p < .01

Hypothesis 3: Analysis of the results shows that the third hypothesis, that ED and ID would be directly related to maternal overrestrictiveness and overprotectiveness, was unconfirmed. Reference to Table 1 shows that only one of the seven parental attitude scales correlated as predicted with either ED or ID with a p value of less than .05.

Thus the hypotheses of this study were not confirmed for the total sample. However, further data analysis was performed. This was done by first dividing the total subject group of 40 into two separate groups of 20 each, the median age being used as the dividing point. Then the same set of correlation coefficients between IV's and DV's was obtained for each group separately. This additional analysis was performed because age is expected to be related to dependency, as stated earlier. Its potentially confounding effects on the results could be reduced by looking separately at the older and younger Ss.

The older group of Ss, henceforth called Group 1, had a mean age of 10 years, 11 months (with a range from 10 years, 5 months - 11 years, 11 months). The younger Ss, Group 2, had a mean age of 9 years, 6 months (with a range from 8 years, 5 months - 10 years, 5 months).

## Results of the Analysis by Age Groups

### Instrumental Dependency

A. Maternal Attitudes

Age Group 1.--As Table 1 shows, overprotectiveness and

overrestrictiveness as measured by PARI scales Approval of Activity, Suppression of Sex, and Encouraging Verbalization was significantly correlated with instrumental dependency, as measured by AR scores (Anchor Referral Technique scores will be referred to throughout this section as "AR" scores). However, the predicted direction was positive in the case of the first two scales, and negative in the case of the last one; but the resulting correlations were in the opposite direction from prediction in all three cases.

Thus, the more overrestrictive mothers were of their daughters along the dimensions of restricting the child's sexual behavior and compelling her to keep busy and on the go, the less instrumentally dependent the girls were. Likewise, the more mothers encouraged their daughters' autonomy in verbalizing feelings, the more instrumentally dependent the girls were.

Age Group 2.--On the other hand, in the group of younger children, there were no significant correlations at the .05 level in either direction between any PARI scale and AR. This was contrary to the hypothesis. Thus, no maternal child-rearing attitudes which can be classified as overprotective and overrestrictive are related to instrumental dependency in the younger age group (see Table 1).

B. Seizure Parameters

1. Age of Onset of Seizures (Table 6)

For both age groups 1 and 2 there was not a significant correlation coefficient in either direction between AR score

and age of onset of seizures. This result failed to confirm the prediction that there would be an inverse relationship between degree of ID and the age seizures began.

2. Severity of seizures in the first year

Frequency--As was the case in regard to maternal attitude-ID relationships, different results held for age groups 1 and 2 (Table 6). For the younger Ss, there was no significant correlation between frequency of seizures in the first year (Freq 1) and degree of ID. But for the older Ss, there was a positive and significant correlation between these two variables. The first result was not as predicted, while the second was. Thus, for the older Ss, the more frequent their seizures were during the first year they had them, the more instrumentally dependent they were. But, for the younger Ss, this relationship did not hold.

Type--Table 6 shows that no significant Pearson r was obtained for either age group between type of seizures in the first year (Type 1) and AR scores. This result failed to confirm the hypothesis that these two measures would be positively related.

## Emotional Dependency

### A. Maternal Attitudes

Results failed to confirm the hypotheses even with the age group breakdown (Table 9). In the case of both age groups,none of the seven PARI scales correlated significantly with CDS scores. This result failed to confirm the prediction that the degree of maternal overprotectiveness and

overrestrictiveness would be positively related to the degree of emotional dependency.

B. Seizure parameters

Neither age of onset, nor frequency of seizures during the first year, nor type of seizures during the first year of seizures correlated significantly in either direction with the CDS. This held for both age groups 1 and 2 (Table 11). Thus, the hypothesis of an inverse relationship between age of onset and ED, and the hypotheses of direct relationships between frequency and type of seizures during the first year and emotional dependency, were all unconfirmed.

These findings, in sum, disconfirmed the hypotheses in regard to ED-seizure parameter relationships. It thus does not seem that any seizure parameter directly covaries with ED. Thus, again, as was the case in regard to maternal child-rearing attitudes, ED showed no relationships with the independent variables.

## Exploratory Data Analysis

After undertaking the analysis of the data to ascertain whether the operational predictions were confirmed, the data was analyzed further in a looser, more exploratory manner. The method of doing this was as follows. First, scattergrams of the variables were plotted, and chi-square contingency tables were constructed to determine whether curvilinear relationships appeared in the data, as opposed to the linear

relationships which the Pearson r is sensitive to. Determination of cutoff points for the cells depended upon the individual scattergram; i.e., the cutoff points were not in all cases a fixed, preset value, such as the median of the scores.

Second, those Pearson r's and chi-squares which failed to indicate relationships significant at the .05 level (the level earlier required for hypothesis testing), but which indicated relationships likely to have occurred by chance less than 10% of the time, were examined.

It is important to note that statistics which attain significance levels, when obtained in this manner, are to be seen as suggestive and interesting results only. They capitalize on chance occurrences characteristic of the specific sample being examined, and thus the inferences made from them to the population under consideration are not as accurate. They clearly need to be cross-validated on other samples. This is not to say that these results are likely to have occurred by chance totally; restrictions have been placed on what has been examined, e.g., a p value of less than .10.

This exploratory search of the data resulted in the emergence of three patterns. First, there appeared considerably more relationships between ID and the independent variables among the older Ss (Group 1) than the younger Ss (Group 2). Second, the relationships that appeared were

generally different in nature and direction from prediction: where a linear relationship was predicted, a curvilinear relationship was obtained; and those linear relationships which appeared were often in the opposite direction from prediction. Third, almost all of the relationships that obtained were between ID and the independent variables, and not between ED and these variables. All of these exploratory findings will be described presently in terms of these three patterns.

1 - Age group differences in regard to ID-independent variable relationships

a) AR-PARI relationships

As was stated earlier, for the older Ss (Group 1) 3 PARI scales correlated significantly (.05 level or better) with AR scores. In addition, a fourth - Breaking the Will, the suppression of autonomy scale - correlated at a probability level of less than 10% (Table 1). However, for the younger Ss (Group 2), Table 1 shows that only one PARI scale- Breaking the Will - correlated at better than the 10% probability level with AR.

Thus, on 4 out of 7 maternal child-rearing dimensions, maternal attitudes covary with daughters' instrumental dependency. But this only holds for the older Ss.

To take a closer look at the striking age group differences in correlation coefficients between AR and PARI scales, PARI scores were correlated with age (Table 2). For age group 1, no significant correlations appeared, but for age group 2, 2 PARI scales, Suppression of Aggression and

Table 2

Correlations between Age of Child and Parental Attitude Research Instrument Scales, for each Age Group

| | | Age of Child | | |
|---|---|---|---|---|
| | | Age Group 1 | Age Group 2 | Group 2 minus Group 1 |
| PARI Scales | Fostering Dependency | + | + | |
| | Suppression of Aggression | -.04 | -.55*** | -.51* |
| | Suppression of Sex | -.20 | -.34 | -.14 |
| | Breaking the Will | -.28 | -.36 | -.08 |
| | Approval of Activity | .04 | -.55*** | -.59** |
| | Encouraging Verbalization | + | + | |
| | Equalitarianism | .11 | .26 | .15 |

*p <.10
**p <.05
***p <.02
+ unavailable

Approval of Activity, correlated significantly in the negative direction with age, with a p of less than .02. It seems that, as their daughters progress from age 8 years, 5 months to age 10 years, 5 months (Group 2), mothers do less and less rejecting of aggressive behavior and less and less to compel a high level of activity. But as their daughters progress from 10 years, 5 months to 11 years, 11 months (Group 1), mothers cease changing these child-rearing behaviors. The change in correlation coefficient from one age group to the next is statistically significant (Table 2). Thus, in regard to these aspects of maternal overprotectiveness and over-restrictiveness, mothers' child-rearing behaviors seem to change from one age group to the next.

This is also true in regard to maternal encouragement of verbal autonomy (PARI scale Encouragement of Verbalization). A look at this data, via a chi-square analysis (Table 3), reveals that this maternal attitude undergoes 2 changes in relation to the child's age. There is a marked decrease in this behavior, comparing the age range 8 years, 5 months - 10 years, 0 months with the age range 10 years, 1 month - 10 years, 7 months. Thus, a breakdown into 3 age groups shows another significant change in maternal child-rearing as the child gets older. The chi-square obtained has a p value of less than .001.

This result suggested taking a look at AR itself with relation to age to see if such a 2-step change occurred there,

Table 3

Chi-square Analysis of Age of Child vs. Encouraging Verbalization Scale

| EV | Youngest (< 121 months) | Middle | Oldest (> 127 months) |
|---|---|---|---|
| High EV (EV > 15) | 14 | 2 | 13 |
| Low EV (EV ≤ 15) | 3 | 8 | 0 |

Age

$X^2=17.64$, df=2, $p<.001$

also. Before looking at this relationship, the correlation coefficients between age and instrumental dependency (ID) were obtained for the original 2 age groups, as per the initial analysis (Table 4). (The overall pooled correlation coefficient between AR and age was .00.) Neither coefficient was significantly different from zero, but the 2 were significantly different from each other. ID thus has more of a tendency to increase with age among the older girls than it does with the younger ones ($p$ is less then .05).

A more refined look was than taken through a chi-square analysis (Table 5), using the same age division points as in the chi-square analysis between age and Encouraging Verbalization. The same 2-step change resulted as had with encouragement of verbal autonomy. That is, from the youngest group of the 3-group breakdown to the middle group, ID decreased. But from the middle to the oldest group, ID went back up (so that the oldest was statistically insignificantly different from the youngest). The $p$ value of this chi-square is less than .01 (Table 5).

Thus, a 2-step process occurs over age with the variables of encouraging verbalization and instrumental dependency. They both first go down with age, then go up again. And older Ss become more and more instrumentally dependent with age, compared to younger Ss.

b) AR-seizure parameter relationships

i) Age of onset of seizures--Here, too, the 2 age

Table 4

Correlations between Age of Child and Dependency Measures;

For Total Sample, and by Age Group Breakdown

| | | Age of child | | | |
|---|---|---|---|---|---|
| | | Age Group 1 | Age Group 2 | Total Sample | Age Group 1 minus Age Group 2 |
| Dependency Scales | Anchor Referral | .20 | -.34 | .00 | .54* |
| | Children's Dependency Scale | -.11 | .14 | -.05 | -.25 |

*p < .05

Table 5

Chi-square Analysis of Age of Child vs. Anchor Referral Scores (AR)

| AR | Youngest (<121 months) | Middle | Eldest (>127 months) |
|---|---|---|---|
| High AR (AR>2) | 17 | 4 | 8 |
| Low AR (AR≤2) | 2 | 7 | 2 |

Age of Child

$X^2$=10.2, df=2, p <.01

| AR | Youngest | Eldest |
|---|---|---|
| High AR (AR>2) | 17 | 8 |
| Low AR (AR≤2) | 2 | 2 |

Age of Child

$X^2$=.62, df=1, N.S.

groups demonstrated different relationships between ID and the independent variables. As can be seen in Table 6, for the older Ss there is a Pearson r significant at the .10 level between ID and seizure onset age. The earlier the onset age, the lower is the group 1 S's ID. But this does not hold for the group 2 S.

However, this data was plotted and examined to see if there was a curvilinear relationship. As can be seen in Table 7, a significant chi-square, p less than .05, was the result for age group 2, and a non-significant one for age group 1. This suggests that, for the younger Ss, if seizures begin at a critical intermediate age (between 1 year, 8 months and 5 years, 8 months), the child will be more instrumentally dependent than if they begin earlier or later in life. But this effect no longer holds for older children: once a child has reached age 10 years, 5 months, she is more likely to be very instrumentally dependent if her seizure onset age was late rather than early.

ii) Frequency of seizures in the first year--Here, too, different results held for age groups 1 and 2 (Table 6), as stated earlier. For the younger Ss, there was no significant correlation between frequency of seizures in the first year (Freq 1) and degree of ID. But for older Ss, there was a positive and significant correlation between these 2 variables (p less than .02). Thus, for the older Ss, the more frequent their seizures were during the first year they had them, the

Table 6

Correlations between Anchor Referral Scores and 3 Seizure Parameter Scales; for Total Sample, and by Age Group Breakdown

| | | Anchor Referral | | |
|---|---|---|---|---|
| | | Age Group 1 | Age Group 2 | Total Sample |
| Seizure Parameters | Onset Age | .40* | -.27 | .03 |
| | Freq 1[a] | .55*** | .27 | .37** |
| | Type 1[b] | .15 | -.05 | .03 |

[a]Frequency of seizures in the first year of having them.

[b]Type of seizures in the first year of having them.

*$p < .10$

**$p < .05$

***$p < .02$

Table 7

Chi-square Analysis of Anchor Referral Scores vs. Age of Onset of Epilepsy, for each Age Group

Age Group 1

$X^2=3.75$, df=2, N.S.

| | Early (<20.5 months) | Middle | Late (>67.5 months) |
|---|---|---|---|
| High AR (>14.5) | 1 | 4 | 1 |
| Low AR (<14.5) | 5 | 3 | 6 |

Onset Age

Age Group 2

$X^2=6.69$, df=2, $p<.05$

| | Early | Middle | Late |
|---|---|---|---|
| High AR (>14.5) | 1 | 3 | 1 |
| Low AR (<14.5) | 5 | 1 | 9 |

Onset Age

AR

more instrumentally dependent they were. But for the younger Ss, there was no such result.

iii) Type of seizures in the first year--Age group differences persisted with the analysis of this variable (Table 6). No significant Pearson r's were obtained for either age group between Type 1 (type of seizure in the first year) scores and AR. But a look at the scores for a non-unidirectional relationship (Table 8) revealed a statistically significant chi-square for group 1, and a statistically non-significant chi-square for group 2. This indicates that, for the older Ss, children with an intermediate type of seizure, as compared to children with either a more severe or a more benign type, were more instrumentally dependent. But no such effect held in the younger group of Ss.

To partially sum up the results with respect to the relationship between instrumental dependency and seizure parameters:

In all cases, just as in the analysis of relationships between ID and maternal child-rearing attitudes, different relationships appeared in the 2 age groups. Onset of seizures was related in curvilinear fashion to ID in the younger Ss, but in linear fashion in the older Ss. Frequency and type of seizures in the first year was related to ID in the older Ss, but not the younger Ss.

(Interestingly, emotional dependency correlated significantly with one seizure parameter - frequency of seizures

Table 8

Chi-square Analysis of Anchor Referral Scores vs. Type of Seizures in the First Year Scale, for each Age Group

Age Group 1

$X^2=4.71$, df=2, $p < .10$

| | Low (<9) | Inter-mediate | High (>11) |
|---|---|---|---|
| High AR (>4) | 3 | 5 | 3 |
| Low AR (<4) | 5 | 1 | 3 |

AR

Type 1

Age Group 2

$X^2=2.41$, df=2, N.S.

| | Low (<9) | Inter-mediate | High (>11) |
|---|---|---|---|
| High AR (>4) | 4 | 7 | 2 |
| Low AR (<4) | 3 | 2 | 2 |

Type 1

over the duration of illness - in the predicted - positive - direction, among Group 2 subjects. However, no prediction was made for this parameter.)

2 - Results different in nature or direction from prediction

a) Differences in direction of Pearson r's--For the most part, the Pearson r's obtained between IV's and DV's were in the opposite direction from that predicted. In the case of AR-PARI relationships, 4 out of the 5 obtained correlations reaching significance at the .10 level or better were in the opposite-from-predicted direction (Table 1). It was predicted that Ss would be more instrumentally dependent if their mothers were overrestrictive, for example, if they suppressed their daughters' autonomy, restricted their sexual behavior, compelled them to keep busy and on the go frequently, and failed to encourage their verbal autonomy. However, just the opposite was true.

b) Curvilinear vs. linear relationships--Frequently, curvilinear relationships appeared between IV's and DV's, which resulted in disconfirmation of the hypotheses, since the hypotheses predicted linear relationships. As mentioned earlier and shown in Table 3, maternal encouragement of verbal autonomy (PARI scale Encouraging Verbalization) underwent 2 changes in relation to the child's age. There was a marked decrease in this behavior, comparing the youngest age range with the middle age range; then a marked increase, comparing the middle range with the highest range. Although no

prediction was made in regard to this relationship, it is interesting to note that a curvilinear relationship obtained, especially with a chi-square so high, given the degrees of freedom (p less than .001).

A parallel result, significant at the .01 level, appeared in regard to the relationship between age and AR (Table 5). Although again no prediction was made, it is interesting that there resulted a curvilinear relationship, using the same age division points as in the chi-square analysis of age and Encouraging Verbalization. From the youngest group of the 3-group breakdown to the middle group, ID decreased. But from the middle to the oldest group, ID rose again, so that the oldest was statistically-insignificantly different from the youngest. Thus the same 2-step process occurred over age with the variables encouraging verbalization and instrumental dependency; they both first went down with age, then went up again.

A curvilinear relationship that obtained where a linear one was predicted is the previously-cited chi-square significant at the .05 level between onset age of seizures and ID for group 2 (Table 7). This suggests that, for the younger Ss, if seizures began at a critical intermediate age, the child was more instrumentally dependent than if they began later or earlier in life.

A second curvilinear relationship that obtained where a linear relationship was predicted was in the case of ID and type of seizures in the first year, as already described

Table 9

Correlations between Children's Dependency Scale and Parental Attitude Research Instrument Scales; for Total Sample and by Age Group Breakdown

| | | Age Group 1 | Age Group 2 | Pooled Age Groups |
|---|---|---|---|---|
| PARI Scales | Fostering Dependency | .29 | .31 | .30* |
| | Suppression of Aggression | .26 | .16 | .21 |
| | Suppression of Sex | .36 | .15 | .27* |
| | Breaking the Will | .20 | .19 | .19 |
| | Approval of Activity | .01 | .05 | .04 |
| | Encouraging Verbalization | -.01 | -.02 | -.24 |
| | Equalitarianism | .03 | -.25 | -.09 |

*$p < .10$

Table 10

Chi-square Analysis of Children's Dependency Scale (CDS) vs. Age of the Child

| CDS | Youngest (<121 months) | Middle | Oldest (>128 months) |
|---|---|---|---|
| High (>11) | 11 | 6 | 6 |
| Low (≤11) | 7 | 5 | 5 |

Age of child

$X^2=3.42$, df=2, N.S.

(Tables 6 and 8). The predicted Pearson r's failed to appear between these two variables in either age group. But, in the case of the older Ss, children were more instrumentally dependent if they had an intermediate type of seizure in the first year, as opposed to having had either a more severe or a more benign type.

A similar relationship appeared in the case of ED-seizure parameter relationships. It was predicted that Ss would be more emotionally dependent if the frequency of their seizures in the first year of experiencing them was relatively high. As was stated earlier, this result did not appear (Table 11), but Table 13 suggests that Ss with intermediate frequency of seizures (in the older age group) were more emotionally dependent than either Ss with the highest or Ss with the lowest frequencies. (No significant relationships for either group were demonstrated between ED and seizure type. See Tables 14 and 15.)

3 - Predominance of ID-rather than ED-independent variable relationships

Whereas the hypotheses predicted the same relationships between the independent variables (seizure onset age, seizure severity, and maternal attitudes) and ED as they did between these variables and ID, the results were otherwise. (Correlation of ED with ID was only -.14, $p > .10$.) There was a considerable preponderance of obtained relationships with ID over those obtained with ED. All of these have already been described. To recapitulate, they are as follows.

Table 11

Correlations between Children's Dependency Scale and 3 Seizure Parameter Scales; for Total Sample, and by Age Group Breakdown

| | | Children's Dependency Scale | | |
|---|---|---|---|---|
| | | Age Group 1 | Age Group 2 | Total Sample |
| Seizure Parameters | Onset Age | -.09 | -.08 | -.09 |
| | Freq. 1[a] | -.06 | -.02 | -.05 |
| | Type 1[b] | -.35 | .25 | -.10 |

[a]Frequency of seizures in the first year of having them.

[b]Type of seizures in the first year of having them.

None significant at the .10 level.

Table 12

Chi-square Analysis of Children's Dependency Scale vs. Age of Onset Scale, for each Age Group

Age Group 1

$X^2=1.3$, df=2, N.S.

| CDS | Early (<20.5 months) | Middle | Late (>67.5 months) |
|---|---|---|---|
| High (>11) | 2 | 3 | 5 |
| Low (≤11) | 1 | 4 | 5 |

Age of Onset

Age Group 2

$X^2=3.8$, df=2, N.S.

| CDS | Early (<20.5 months) | Middle | Late (>67.5 months) |
|---|---|---|---|
| High (>11) | 5 | 1 | 7 |
| Low (≤11) | 1 | 3 | 3 |

Age of Onset

Table 13

Chi-square Analysis of Children's Dependency Scale vs. Frequency of Seizures in the First Year Scale, for each Age Group

Age Group 1

$X^2=5.6$, df=2, $p < .10$

| CDS | Low (<5) | Inter-mediate | High (>7) |
|---|---|---|---|
| High (>12) | 2 | 4 | 1 |
| Low (≤12) | 8 | 1 | 4 |

Frequency 1

Age Group 2

$X^2=1.2$, df=2, N.S.

| CDS | Low (<5) | Inter-mediate | High (>7) |
|---|---|---|---|
| High (>12) | 4 | 4 | 0 |
| Low (≤12) | 5 | 5 | 2 |

Frequency 1

Table 14

Chi-square Analysis of Children's Dependency Scale vs. Type of Seizures in the the First Year Scale, for each Age Group

Age Group 1

$X^2=2.3$, df=2, N.S.

| CDS | Low (≤9) | Inter-mediate | High (≥12) |
|---|---|---|---|
| High (>12) | 3 | 3 | 1 |
| Low (≤12) | 5 | 3 | 5 |

Type 1

Age Group 2

$X^2=2.6$, df=2, N.S.

| CDS | Low (≤9) | Inter-mediate | High (≥12) |
|---|---|---|---|
| High (>12) | 2 | 4 | 2 |
| Low (≤12) | 5 | 5 | 2 |

Type 1

Table 15

Chi-square Analysis of Children's Dependency Scale vs. Type of Seizures in the First Year Scale, for each Age Group

| | Age Group 1 | | | Age Group 2 | | |
|---|---|---|---|---|---|---|
| | Low (<10) | High (≥10) | CDS | Low (<10) | High (≥10) | |
| $X^2$=.2, df=1, N.S. | 7 | 4 | High (≥12) | 3 | 9 | $X^2$=1.5, df=1, N.S. |
| | 4 | 5 | Low (<12) | 5 | 3 | |
| | Type 1 | | | Type 1 | | |

In regard to relationships between dependency and maternal attitudes, ID showed 5 statistically significant relationships, and ED none. In regard to relationships between age and dependency, ID showed 2 statistically significant relationships, and ED none. In regard to relationships between seizure parameters and dependency, ID showed 4 statistically significant relationships, ED 1. Thus, ED covaried to a much lower degree than did ID with the maternal attitude and seizure-related variables than was hypothesized.

## Summary of Major Findings

Thus the hypotheses were disconfirmed in general for the total sample of Ss. And the additional analysis by age groups failed to reveal relationships which confirmed the hypotheses, also.

However, an exploratory look at the data produced different results. By looking for curvilinear relationships at various breaking points in the distributions, as well as by accepting statistics likely to be obtained by chance in less than 10% (rather than 5%) of all possible samples this size, a number of findings appeared. These findings, together with those obtained by more stringent criteria (i.e., a probability level of less than 5%), fell into 3 patterns.

First, age groups 1 and 2 differed markedly in the relationships observed between independent variables (IV's) and dependent variables (DV's). Whereas both maternal

attitudes and seizure parameters were related to degree of dependency (especially ID) among older Ss, only seizure parameters were so related in the younger group. Second, ED and ID correlated differently with the IV's. ID was significantly related to all of the IV's (usually among older Ss). ED was related to the seizure parameters, but related quite minimally to maternal attitudes. Third, the direction and/or nature of relationships obtained between IV's and DV's was not always as predicted. Maternal attitudes covaried with ID significantly in the negative direction. While frequency of seizures in one case covaried directly with dependency, type and onset age of seizures covaried in a curvilinear fashion with dependency.

Before discussing these patterns, it is necessary at this point to take note of some additional findings of this study.

## Additional Findings

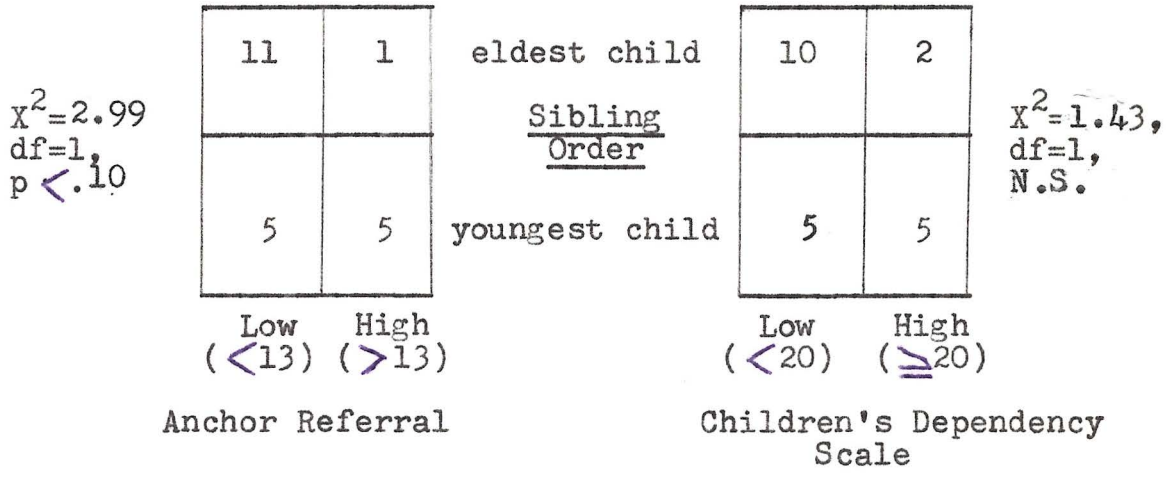
In all of the following analyses, data is for the total sample, age group breakdowns being ignored (with one exception as noted).

### Sibling Order

To see if being a youngest vs. an eldest child in the family related to dependency, a chi-square analysis was carried out, one with AR scores and another with CDS scores. (See Table 16.) As can be seen, on the AR scores youngest children were significantly more dependent than eldest children.

Table 16

Chi-square Analysis of Dependency Measures vs. Sibling Order




$X^2=2.99$, df=1, $p < .10$

$X^2=1.43$, df=1, N.S.

## Medical Diagnosis

The data was also analyzed to see if a significant relationship existed between medical diagnosis and dependency. In Table 17, it can be seen that, by using the medical breakdown of 4 diagnostic categories: Grand Mal, Focal, Petit Mal, and Temporal Lobe - there are significant differences in AR scores. However, this did not hold for CDS scores. Thus, Grand Mal and Focal epileptic children are more instrumentally dependent than Petit Mal or Temporal Lobe epileptic children, but not more emotionally dependent.

## Family Income

Using a 3-point income scale (see Table 18), AR scores were analyzed to see if a relationship existed between ID and family income. One did, namely, that, with each of the 2 increases in income, there were likewise increases in the proportion of high-dependent Ss.

## Differences in Maternal Attitudes Toward Epileptic Children

The PARI data was examined to see if mothers scored differently on the various scales when asked for their attitudes toward children with epilepsy vs. children without epilepsy. Originally, the data analysis to test all of the hypotheses regarding relationships between dependency and maternal child-rearing attitudes was going to employ mothers' responses to the column on the PARI labelled "in regard to

Table 17

Chi-square Analysis of Medical Diagnosis vs. Anchor Referral Scores, and vs. Children's Dependency Scale

$X^2=11.58$, df=3, $p < .01$

Anchor Referral (AR)

| | Grand Mal | Focal | Petit Mal | Temporal Lobe |
|---|---|---|---|---|
| High (>7) | 6 | 5 | 1 | 1 |
| Low (≤7) | 1 | 1 | 4 | 6 |

Medical Diagnosis

$X^2=2.73$, df=3, N.S.

Children's Dependency Scale (CDS)

| | Grand Mal | Focal | Petit Mal | Temporal Lobe |
|---|---|---|---|---|
| High (>10) | 4 | 3 | 4 | 6 |
| Low (≤10) | 3 | 3 | 1 | 1 |

Table 18

Chi-square Analysis of Family Income vs. Anchor Referral Scores

$X^2=8.01$, df=2, $p < .01$

| AR | <$7500 | $7500-$10,000 | >$10,000 |
|---|---|---|---|
| High (>17) | 0 | 2 | 6 |
| Low (≤17) | 17 | 7 | 4 |

Income

children with epilepsy," the assumption being that large differences would have occurred between this column and the one labelled, "in regard to children without epilepsy" (underlining added). No analysis was made, however, since less than 2% of all questions were responded to differently in this way. Thus, for every S, the number of questions answered differently in the entire set of questions was about one-half. Apparently, mothers' child-rearing attitudes toward their epileptic children do not differ from their attitudes toward normal children, as these attitudes are expressed on the PARI.

Medical Diagnosis and Seizure Severity

Medical diagnosis was not related to seizure type, a chi-square analysis dividing type at the median score showed. A similar analysis in regard to seizure frequency revealed that petit mal predicted high frequency, temporal lobe low frequency, compared to each other; but no other comparisons were significant, although the overall chi-square for all 4 diagnoses was.

Comparison with Other Samples

Total CDS scores (the original scoring key) were compared with those of the girls in Golightly's (1970) normal sample, where the mean age was 10 years, 2 months. This sample, with a mean age of 10 years, 3 months, was significantly higher in dependency, $t=4.4$, $df=125$, $p < .001$. Compared to the over-dependent group in Golightly's study, this sample was no different, $t=.6$, $df=57$, $p > .05$.

# CHAPTER FOUR

## Discussion

To recapitulate the results of this study: the hypotheses that epileptic children's overdependency (both emotional dependency - ED - and instrumental dependency - ID) would be directly related to maternal overrestrictive and overprotective attitudes; directly related to the severity of seizures; and inversely related to age of onset of seizures; all of these were on the whole unconfirmed (the one exception being that one aspect of seizure severity, frequency of seizures in the first year of having them, was positively correlated with one type of dependency, ID). This was not a total surprise, however, since it was expected that the age differences among the subjects might be a confounding influence on the results. Hence the breakdown into the older and younger age groups for separate data analysis. The result of this latter analysis was not a confirmation of the hypotheses, either.

However, an exploratory look at the data produced different results. By looking for curvilinear relationships at various breaking points in the distributions, as well as by accepting the 10% level of significance (rather than the 5% level), a number of findings appeared. These findings, together with those obtained by more stringent criteria, fell into 3 patterns.

1) Age groups 1 (older) and 2 (younger) differed markedly in the relationships observed between IV's (i.e., independent variables - maternal attitudes, and seizure severity and onset) and DV's (i.e., dependent variables - ED and ID); age group 1 showed considerably more such relationships.

2) ED and ID correlated differently with the IV's; ID was related to them more frequently than was ED.

3) The IV-DV relationships that did obtain were in general different in direction and/or nature from prediction; where positive Pearson r's were predicted, either significant negative Pearson r's or significant chi-squares were obtained instead.

It is important to emphasize at this point that results obtained in an exploratory fashion such as this are more likely to have occurred by chance than are results obtained by more stringent criteria. Hence, they are to be interpreted with caution, and the discussion of them that follows must be taken in this light. Rather than being considered as confirming hypotheses, these results will be discussed in terms of their value as suggestive leads for future research. On the other hand, restrictions have been placed on the role chance may have played in these results; for example, statistics with a p value of over .10 were rejected. In addition, these results did fall into patterns; they can thus be considered to have more meaning than if they were all unrelated.

Given this caveat, in this section there will be a discussion of the three patterns of results that appeared. The

discussion will address itself to the questions of the failure to obtain hypothesis confirmation, as well as the possible meaningfulness of the statistically-significant results that appeared. The first pattern to be discussed will be that of the age group differences.

A. Age Group Differences

For the younger Ss, Group 2, there was no correlation found between maternal attitudes and ID. However, there was such a correlation in the case of older Ss, group 1. One explanation that suggests itself for this discrepancy is that there is another factor influencing dependency that works in opposition to maternal attitudes, and that this factor operates differently at different ages. Such a factor might be the latency age phenomenon of counterdependency alluded to above. Counterdependency as defined earlier is the rejection of dependent behavior even when such behavior is demanded by the situation. It was the E's impression that Ss asked E for help too infrequently. The task was too difficult for them to perform successfully with a mean of 10 requests for help for the 50 stimulus presentations; the rate of error, although not calculated, was high. Many Ss' behavior seemed to be influenced by the feeling: "Leave me alone; I'll do this by myself, even if I can't do it well."

According to Erikson (1950) and White (1973), this factor in latency operates independently of parental influence.

Schoolroom situations present a demand to perform on one's own, to develop skills and abilities that give one "a token sense of participation in the world of adults," Erikson writes. White writes, "[in school] they must now show what they have in the way of physical prowess, courage, manipulative skill, outgoing friendliness, all in direct comparison with other children of their age." The ID task may have been tapping this need among the younger children to "be on your own." Since this is a need that develops independently of the parents, one might expect that the degree of its manifestation on the task would be unrelated to maternal child-rearing factors. Hence the lack of correlation between AR and the PARI.

For the older Ss, however, it may well have been that this latency-age counterdependency had diminished, and so the task tapped the actual underlying dependency. Hence, as predicted, maternal attitudes were related. There is reason to believe that an additional process was operating, one which is also closely related to maternal attitudes. That this process - sex-typing of dependency - was operating is suggested both on theoretical grounds and by a closer look at the data. In terms of developmental theory, it was noted that girls, toward the end of latency,are approaching the adolescent task of sex-role identity formation that was held somewhat in abeyance in latency. Latency issues, on the other hand, diminish in import. This implies that these girls are becoming increasingly <u>dependent</u>. At the outset, it was the

intent in this study to choose an age-range representative solely of latency-age Ss. However, the older group of Ss had a mean age of just under 11 years. In four cases menarche had occurred (although these individuals were not more dependent to a statistically significant degree than other Age Group 1 subjects). And the influence of their age difference as compared to the younger Ss (1 year, 5 months) may have been accentuated by the chance happening that, on a grade-level basis, the average difference was almost 2 years. Hence it can be argued the older Ss were more representative, by biological age and peer group membership, of a preadolescent population.

An initial look at the data shows age group 1's and age group 2's AR scores to be equivalent. However, the chi-square breakdown showed a 2-step change - an initial <u>decrease</u> in ID followed by an <u>increase</u> - that might be interpreted as follows: The first two-thirds of this age grouping consisted of Ss who were growing less dependent with age, in latency-age fashion. Then a shift occurred. The last third represented the first beginnings of the process of sex-typed dependency, which is predicted to increase with age.

Thus, among the older Ss, counterdependency ceased, and the predicted role of maternal attitudes in ID appeared. This is especially the case, given that sex-typed dependency is culturally determined, and mediated partly through maternal behaviors. That is to say, it is in large part a mother's

function to transmit the role expectations toward her daughter that society demands. In fact, chi-square analysis showed a quite significant increase in encouraging verbalization on the part of mothers toward their daughters between the middle and the highest age groups. This process was discussed earlier in terms of girls' looking toward their mothers as models to identify with, a process that begins in the Oedipal stage and increases with approaching adolescence. In sum, then, there were two reasons maternal attitudes were related to the older Ss' dependency. The counterdependent "let me do it myself" attitude ceased with latency drawing to a close; and the maternally-mediated sex typing increased with approaching adolescence.

Thus ID can be viewed as being influenced by three variables. First is "real dependency," which is defined as the child's realistic needs for help from others in regard to any tasks she faces. On the Anchor Referral, this need for help was the actual inability Ss faced to accurately judge hues on their own. Second is counterdependency, which is the latency-age need to be on one's own regardless of actual needs for help. On the AR, it was manifested in the Ss' refusal to ask for help, even where needed. Third is sex-typed dependency, which is the need to ask for help in order to exhibit appropriate sex-role behavior. This manifested itself on the AR in Ss' asking for help in situations where it was not really necessary.

In this view, "real dependency" decreases steadily with age. Counterdependency increases during most of latency, then decreases at the end of latency. Sex-typed dependency shows an initial increase in prelatency (the Oedipal stage), then levels off during latency, then increases in preadolescence.

There is one caveat to keep in mind when considering the validity of this interpretation. It can be questioned whether different developmental processes were taking place in two groups whose mean age difference was 1 year, 5 months. Even though it was pointed out that menarche had occurred in several cases of the older group, and that the grade level difference was actually about two full years, it must be admitted that the theoretical discussion here presented is only offered tentatively as a plausible argument. It remains for further research to test out its validity.

## B. Statistically Significant Relationships Different in Direction or Nature from Prediction

### 1. Maternal Attitudes and ID

As noted earlier, the relationships that were obtained in the older age group between ID and maternal attitudes were in the opposite direction from that predicted. Encouragement of verbalization correlated positively with ID. All of the other maternal attitudes which were indices of maternal overrestrictiveness correlated significantly in the negative direction with ID. This is quite an interesting finding,

as it was unexpected; this finding thus invites some additional speculation.

A superficial explanation that suggests itself is that overrestrictiveness is not really related specifically to overdependency. Maternal overrestrictiveness, it could be argued, has a general inhibitory effect on behavior of any kind, instead of the hypothesized effect of fostering dependency. It would follow that help-seeking behavior, as measured by the AR, would be inhibited; hence the low ID scores in cases where mothers were overrestrictive.

However, an explanation along the theoretical lines developed originally suggests itself instead. This explanation is also consistent with the above discussion of sex-typing influences on ID. This explanation is as follows: Given that both counterdependency and "real dependency" have decreased among older Ss, sex-typed dependency is the primary influence on ID. Ss' mothers mediate this sex-typing by providing a model. The girl "looks to" her mother for behavior to copy. However as White points out (1973), different girls copy their mothers' behaviors to different degrees. At least one relevant factor in regard to the degree to which a mother is copied would seem to be the following. If the girl's mother is suppressive, restricting, and punitive toward her daughter (as the overrestrictive mothers, by definition, are), the girl might find it difficult to act increasingly dependent toward her. In behavioral terms, the emission of sex-role-appropriate behavior is followed by a

high degree of negative reinforcement. In affective terms, the feeling would be, "Why act helpless, dependent, and needing of people if such behavior toward the person I'm closest to results in excessive restrictions, punishment, and coercions. I'd rather keep her out of my life, even if it means acting independent." Hence the negative correlation among Ss of this age group between ID and maternal overrestrictiveness.

It could then be argued that encouragement of verbalization, on the other hand, is a maternal behavior that would be welcomed by the child, and would be positively reinforcing. I.e., increased sex-role dependency would be followed by positive consequences: the child acting dependent toward her mother will be reinforced by mother's welcoming and approving of the child's (verbalizing) behavior. For this reason, then, the obtained positive correlation between ID and encouraging verbalization is understandable.

2. Seizure Parameters and Dependency

The relationships between these two variables were generally significant; but, as was the case with maternal attitude-ID relationships, the obtained relationships were not those that were predicted. (Significant chi-squares were obtained, indicating curvilinear relationships. Pearson r's were predicted, which would have indicated straight-line relationships.) Dealing first with seizure parameter - ED relationships, it was found that for the older Ss, Ss with intermediate, or middle, frequency of seizures were more dependent than low-frequency Ss, as predicted, but high-

frequency Ss were less dependent than middle-frequency Ss. But for the younger Ss results differed: there was no significant linear or curvilinear relationship in the data. Perhaps the child with frequent seizures, after experiencing them for some time, "learns to live" with them, at least emotionally (ID did not show this relationship). A good deal of experience with seizures reinforces the reality - as opposed to the pathological distortion - that seizures need not make one feel more dependent on others. (The importance of reinforcing the realistic nature of seizures will be discussed later in regard to the treatment implications of this study.)

The other seizure parameter - ED relationship that appeared was the predicted one of a positive correlation between ED and frequency of seizures (in this case, average frequency over the duration of illness) among younger Ss. This supports the theoretical argument that a threat to the executive functions of the child's ego - a threat directly proportional to the frequency of seizures - is contributory to these children's overdependency. That neither onset age in either age group, nor seizure type among older Ss, was related via Pearson r or chi-square will be discussed later as part of the pattern of obtaining fewer relationships between the IV's and ED than between the IV's and ID.

Dealing now with seizure parameter-ID relationships, frequency and type of seizure were unrelated to dependency among the younger Ss, whereas onset age was. Yet all three

were related among the older Ss.* It may be that the counterdependency of the younger Ss did play some role here, in the following way (although not as major a role as in the case of maternal attitude-ID relationships). For the counterdependent young S, it simply might not make much difference whether, in her first year of seizures, they were very frequent or involved severe disability; the need to be independent during latency holds sway. But this need may not hold sway in regard to the issue of <u>when</u> they began. I.e., it perhaps <u>does</u> make a difference to even these children to have had seizures at a young age; there is more impact than if they began at a later age. Perhaps late onset children are not even overdependent. Further research could test this out. (The children with earliest onset were not as dependent as middle onset Ss, and were more similar to late onset Ss. It may be that these very early onset children - aged 2 and under - were "too young to remember" either having seizures or having overprotective and overrestrictive mothers who responded to the seizures (in general seizures become well-controlled by medications shortly after their onset). White

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*Onset age was slightly below significance in its curvilinear relationship to dependency for the older Ss. However, this might have been an artifact. There was in the case of the older group a positive correlation between frequency and onset age that occurred with them, but not with the younger Ss. If late onset seizures did not happen to also have been very frequent seizures (they were not, among younger Ss), the chi-square relationship between onset and dependency quite possibly would have appeared.

(1973) points out that healthy developmental processes can supersede the effects of early traumata.)

The apparent effect of counterdependency, in terms of weakening seizure parameter-ID relationships, disappears in older Ss; for these older Ss, significant relationships appear in the case of all three seizure parameters. However, in the case of type of seizure - the index of severity of impairment of functioning - there is an unpredicted decrease in dependency from middle- to high-type seizures, as opposed to a predicted increase from low to middle type seizures. The discussion of handicap-linked effects of epilepsy is perhaps relevant here. It may be that for Ss with high-type seizures, where falling predominates, it is obvious to them that they need help in regard to their seizures. Thus they do not generalize help-seeking behavior to all situations. But middle-type Ss may not so consciously feel that they have a handicap - perhaps they have staring spells or twitches of the arms - and yet they receive frequent medical attention, and mothers and teachers act overprotective. It thus may not be clear to them why they are receiving help, and thus they may come to feel they need it in regard to life in general. Low-type Ss, however, may not in fact be treated as if they have a handicap. Mothers and teachers, and perhaps doctors, are not as alarmed by, for example, a visual hallucination or stomachache, and so do not behave in such a way as to cause the child to feel that she needs help.

C. Failure to Obtain Significant Relationships with ED

A part of the above discussion concerned age group differences in relationships between maternal attitudes and ID. ED, on the other hand, showed minimal relationships to maternal attitudes in either age group. This was part of the pattern noted above with regard to ED-seizure parameter relationships. There were fewer relationships between the IV's (maternal attitudes and seizure parameters) and ED than between these variables and ID. This finding bears discussion.

It may be that ED is not a simple outcome of secondary reinforcement, as hypothesized. Rather than being an outgrowth of ID - i.e., being the seeking of others' responses as an end-goal, because these responses were originally associated with instrumental gratification - ED may develop independently. (As noted, ID and ED correlated nonsignificantly.) Perhaps the operative variables are not maternal behaviors which reinforce children's dependency behaviors (in psychoanalytic terms, oral fixation or regression induced by maternal relationship factors). Perhaps, instead, ED in preadolescent girls develops through their imitation of, or identification with, their mothers' ED, as the girls perceive it. (This would be a process parallel to, although entirely separate from, the sex-role typing discussed with reference to ID.) The PARI tapped, however, maternal child-rearing behaviors, not ED of the mothers. Hence the CDS might in fact measure ED; ED simply should not be expected to correlate with maternal child-rearing behaviors. This suggests

an area for future research.

Another possible, although less likely, reason for the failure of ED-IV relationships to emerge lies in the instrument used to measure ED, the Children's Dependency Scale. As noted earlier, there have been no independent reliability and validity studies. Although the studies that have been carried out by the test's developers have been impressive, the possibility does exist that the Children's Dependency Scale is a deficient measure of ED in terms of reliability and validity. Independent studies need to be carried out, especially where dependency is predicted to relate to other variables besides those in the original study. Another consideration is the scoring key used in this study, since it did not include all of the items in the original key. The validity and reliability data thus may not strictly apply to the measure as utilized in this study.

## Additional Findings

### Sibling Order

Some of the additional findings bear discussion. ID was significantly higher among youngest siblings as compared to eldest siblings. Although the relationship of sibling order to dependency was not among those studied here, this finding is interesting. It could be hypothesized that eldest siblings assume part of the parenting role toward their younger siblings, and hence are more independent, even during childhood, than youngest siblings. It would be interesting

to see whether, in an overdependent group such as the present one, eldest siblings could still assume such a role.

Family Income

The finding that children from high income families were more instrumentally dependent than those from low income families, while also not of theoretical interest in this study, was not surprising. If "low income" can be equated with "lower class," this finding supports the sociological concept that it is important in a lower class milieu to "be on your own." The higher on the socioeconomic ladder one is, the more there is a stress on, e.g., prolonged dependency until higher education is completed, gratification of material needs, and so forth. It is interesting that this sociocultural factor played a role even in a sample of presumably pathologically-dependent children. It suggests that research in the area of psychopathology or maladaptive behavior must consider the sociocultural context of such behavior.

Medical Diagnosis

The finding that medical diagnosis significantly covaries with ID was a surprising one. It is, in fact, contrary to the idea presented earlier that traditional medical diagnosis is minimally relevant to psychological variables. As reported, diagnosis was unrelated to type of seizure. It was related to frequency of seizures, but not in a way consistent with other data in this study. Whereas high frequency predicted high ID, the diagnosis predicting high frequency

predicted low ID (Petit mal); and the diagnoses predicting intermediate frequency predicted high ID (Grand mal and Focal). (However, the diagnosis predicting low frequency did predict low ID, i.e., Temporal lobe.) On the other hand, an iatrogenic component of overdependency may be operating. A physician convinced by his diagnosis of the severity of the patient's illness may communicate his concern to both the patient and the patient's mother, may schedule more checkups and heavier medication, and so forth. This could increase the child's feelings of needing help from others toward the attainment of a goal (her health); i.e., it could make her more instrumentally dependent. Less affected would be the child's feelings of needing others as a goal in itself. This might explain why medical diagnosis did not covary with emotional dependency also.

# CHAPTER FIVE

## Summary

This study was an attempt to better understand the antecedents of epileptic children's overdependency. It began by looking at the interface between psychology and the disease syndrome of epilepsy. Of the several facets of this interface which were examined, that area which seemed most fruitful in terms of further investigation and study was the area of the personality functioning of epileptics.

A review of the work which has been carried out in this area showed four phases which have developed historically. The outcome of this work has been support for the conclusion that pathological aggressiveness is characteristic of the personality functioning of many epileptics. It was also discovered that the research on epileptic personality functioning points to an interesting problem that has been referred to in the past, but never investigated in enough depth: the problem of overdependency in epileptic children.

To provide a conceptual and empirical basis for further investigation of this problem, the general problem of overdependency in children was examined in some detail. It was found, first, that dependency can best be defined in terms of two components: instrumental dependency (ID), the

seeking of an individual as a means toward the attainment of another goal, e.g., being fed; and emotional dependency (ED), the seeking of an individual as a goal in itself, e.g., for affection and praise. Then, a theoretical and empirical review of literature in this area suggested that a study of the causes of children's overdependency should especially consider the variables: 1) the executive functions of the child's ego (the earlier and the more severely these are disrupted, the greater the resulting overdependency); and 2) maternal overrestrictive and overprotective child-rearing attitudes (the stronger they are, the greater the resulting overdependency).

Then this general discussion was applied to the specific problem of epileptic children's overdependency. It was found that this specific problem lent itself to further understanding when seen as a special case of the general discussion just concluded. That is, 1) the executive functions of the child's ego are disrupted by seizures, which are loss-of-control experiences; and 2) overrestrictive and overprotective child-rearing attitudes have often been noticed among epileptic children's mothers. Reinforcing the resulting overdependency in epileptic children further are handicap-linked effects: needing to see a doctor, needing to take medications, and so forth. It was seen that the already-existing research in this area suggested the validity of this argument somewhat; but that more research needed to

be done. To address this need, the following hypotheses were developed for this study:

In regard to the problems of disruption of ego functions and handicap-linked effects of epilepsy, it was predicted that:

> Hypothesis 1.--Overdependency in epileptic children will be directly related to the severity of the child's seizures;
>
> Hypothesis 2.--Overdependency in epileptic children will be inversely related to the age of onset of seizures; the earlier they begin, the greater the effect.

In regard to the problem of maternal overprotective and overrestrictive child-rearing attitudes, it was predicted that:

> Hypothesis 3.--Overdependency in epileptic children will be directly related to the degree of maternal overrestrictiveness and overprotectiveness.

To test these hypotheses, the following procedure was carried out. To control for the effects of age and sex, only females from the late latency age range (8-11) were used. 40 such Ss were randomly selected from the Seizure Unit of Children's Hospital, Boston.

To measure ID, the Anchor Referral technique (Mostofsky, 1972) was used. This is an interactional measure whereby the S is afforded an opportunity to ask the E for

help on a color comparison task. To measure ED, the Children's Dependency Scale, CDS (Golightly, et al., 1970), was used. This is a 65-item self-report pencil-and-paper measure developed for latency age children. Maternal child-rearing attitudes were measured by the Parental Attitude Research Instrument (Schaefer & Bell, 1958), a 110-item survey of a wide range of child-rearing attitudes. Both seizure severity and frequency were measured by ad hoc scales developed for the study; age of onset was expressed in months.

Data analysis employed the Pearson r. Results were that none of the hypotheses was confirmed for the total sample. However, since it was expected that age might be a confounding factor in the data, the original sample was divided into two samples - the older half and the younger half of the original sample - and separate data analyses were carried out for each. Although the results again generally failed to confirm the hypotheses, an exploratory look at the data revealed several interesting patterns:

1. Age group differences: Whereas both maternal attitudes and seizure parameters were related to degree of dependency among the older Ss, only seizure parameters were so related in the younger group.

2. Significant relationships of different form or in different direction from prediction: Overrestrictiveness covaried significantly with dependency in the negative direction, but the prediction was for a positive relationship;

type and onset of seizures covaried in a curvilinear fashion with dependency, but the prediction was for a straight-line relationship.

3. ED-ID differences: ID was significantly related to all of the independent variables (maternal attitudes, seizure severity, onset age) in some way; ED was only related somewhat to seizure parameters, and almost not at all to maternal attitudes.

Bearing in mind the important point that these results obtained from an exploratory approach to the data, these three patterns were then discussed. (Despite the exploratory nature of these findings, it should be noted that they fell into patterns and often were statistically highly unlikely to have occurred by chance.)

As noted, the results obtained in this manner were not the ones expected. However, it seemed not so much that the theory which generated the hypotheses was faulty, as that this theory needed to take into account some other variables that influence the degree of dependency in children. The results suggested that the operation of two of these variables - latency age counterdependency and preadolescent sex-typing of dependency - overshadows the effects of the process originally hypothesized to be the major one contributing to overdependency (the process of oral fixation or regression fostered by maternal child-rearing attitudes).

The results also suggested that seizure parameters,

including onset age, type of seizures, and frequency of seizures, do in fact influence the degree of these children's overdependency. However, the nature of this influence is not as simple as that of a straight-line relationship. Rather, the effect of each seizure parameter is different; and these differences themselves depend on the age of the individual.

Another suggestion was that the relevant causative processes of ED differ somewhat from those originally hypothesized. This provided some suggestions for further research concerning this important variable. (The possibility was also considered that the Children's Dependency Scale lacks a very high degree of reliability and/or validity; more research regarding this question is indicated.)

Most importantly, then, this study found that it was possible to successfully predict that several variables are related to epileptic children's overdependency. But it also found that, to predict the nature of these relationships, other independent variables have to be considered as well.

This study did not empirically explore the problem of epileptic boys' overdependency. The theoretical thinking leading to the hypotheses was not sex-specific; however, this theoretical thinking, as was just discussed, apparently needs revision through the inclusion of a sex-typing variable. Thus it is quite possible that different results would have been obtained if boys were used as Ss. Just what these differences might be is a topic that future research should address itself to.

Clinical Implications of this Study

It was stated earlier that improved understanding of the antecedents of epileptic children's overdependency would be useful in developing an effective treatment and prevention program for this problem. Given the general failure of hypothesis confirmation in this study, it cannot be said that the attainment of these therapeutic goals is now much nearer. However, some considerations for helpful clinical intervention do emerge.

Since this study supports the hypothesis that maternal child-rearing behaviors are related to epileptic children's overdependency, it implies that work in the areas of both treatment and prevention ought to be done to stress the need for these mothers to treat their epileptic children similarly to normal children. As was discussed earlier, there are many motives for mothers to act overprotectively and overrestrictively toward epileptic children; some of these doubtlessly act together. It is important for a clinician working within a traditional psychotherapeutic modality to be aware of all of these factors. Since different factors probably are active in different mothers, it would be important for the clinician to make an assessment of the specific underlying motives. Or, if a behavior modification approach is adopted, it would be important to make an assessment of those specific maternal behaviors which are present and need modification (Kanfer & Saslow, 1965).

It should be noted that, given a chance on the PARI to express child-rearing attitudes differentially for epileptic vs. normal children, no differences resulted. This is highly inconsistent with the general impression of workers in the field of childhood epilepsy. It is thus somewhat suspect, and requires further replication. During the study, at least one mother remarked "We were told to treat them the same." The efficaciousness of one such exhortation in modifying behavior based on a presumably powerful underlying motivational pattern is, at best, very doubtful. What may instead have occurred was that mothers may have remembered that they were given this advice, and then feared risking the E's disapproval for seeming to have ignored it. Hence, a more unobtrusive measure of differential child-rearing practices is called for.

Even if there is no overprotectiveness and/or overrestrictiveness specifically evoked by epilepsy in children, these children's overdependency was still related highly to such maternal behaviors. Hence it behooves clinicians working with such mothers - and perhaps any mothers - to aim for the reduction of these child-rearing practices.

Additional interventions are suggested by the findings in regard to the role of the various seizure parameters in the etiology of overdependency. This study suggested which psychological processes mediate between a child's experiencing of seizures and his overdependency. The discussion of

these processes suggests the kind of intervention required in preventive and therapeutic work, at least within a traditional psychotherapeutic framework. The clinician should step in at the onset of seizures, if possible, and help the child express his feelings about his seizures. Through support and interpretation, the clinician can help the child become aware (whether in play or verbally) of his fears concerning the implications of his seizures. Then the clinician should use his role as an agent of reality to dispel those fears. If such intervention is accomplished early, a good deal less work would be required than if it begins long after the onset of seizures. In regard to those "handicap-linked" effects of epilepsy, and their role in promoting overdependency, a less in-depth approach probably needs to be taken. It might be expected that a helpful intervention would be a periodic one which is supportive of the child's sense that he can be a competent individual who is not severely impaired by his seizures - and this is almost always the case. Such reassurance, coupled with a reinforcement of the reality-based need to have periodic checkups and take medications, should be effective.

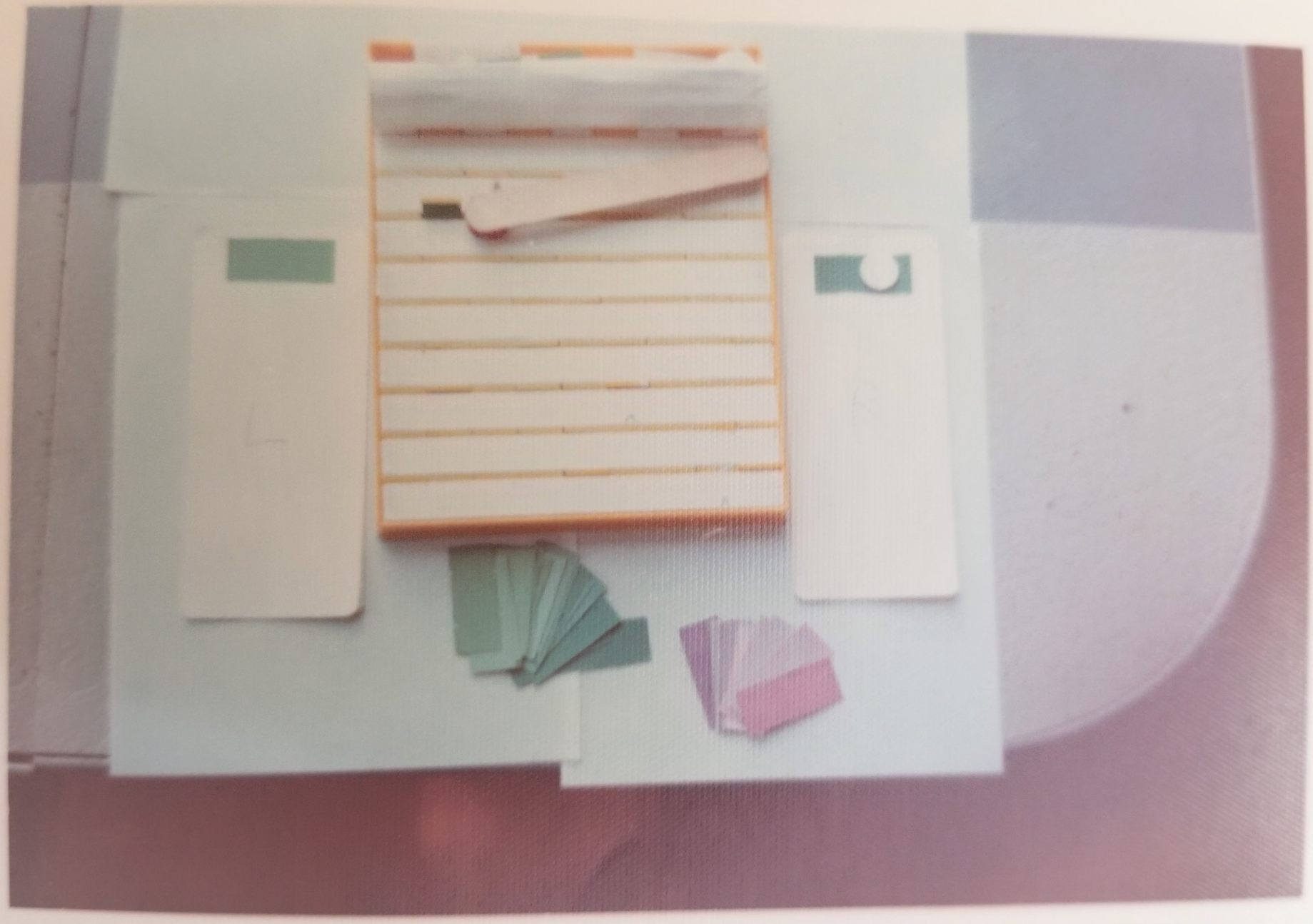
## Appendix A

## The Anchor Referral Technique

Apparatus: The "Magnetic Pop-Up Multiplier" was purchased at F. A. O.Schwartz toy store in Boston and modified for this study. (See photo.) In its original form the "Multiplier" is a 6"x8"x1" yellow plastic toy designed to teach multiplication. The format is that of a 9x9 checkerboard, each row being a "times" (multiplication) table from 1 to 9. I.e., on each square, reading left to right, a product is printed, e.g., "1x1," then "1x2," then "1x3," etc. The rows are in sequence from top to bottom, beginning with the 1 times table, ending with the 9 times table. To get the answer, the child places a small magnet, attached to a 6" plastic rod, over a product. Then a thin plastic square with the answer on it pops up vertically from an opening just above the product. A thin steel plate is attached to each plastic square in order to enable the magnet to pop it up.

The toy was modified as follows. The products printed across the face were all covered with opaque white paper. Then the pop-up answer squares were all covered with green color chips of various hues. The chips were fabricated from swatches of Dutch Boy brand paint color samples (numbers 74, 75, 76, and 80) obtained from a hardware store. They were cut down to size and pasted over the "answer" squares. Fifty squares were covered, going from left to right, in 10 blocks

L
R



of 5, each block utilizing each color once, the order being determined by a random numbers table.

The first row on the toy (originally the 1-times table) was skipped. The next fifty consecutive squares were used.

The "anchor" stimuli were constructed as follows. Color chip Number 73, a green yellower than the others, and chip Number 81, a green bluer, were used. Each "anchor," or comparison stimulus, was formed by pasting two IBM cards together, blank side out, and then pasting an anchor color chip to it (see photo). Number 73 was labelled the "Left" anchor and Number 81 was labelled the "Right" anchor.

In the last row (the 9-times table originally) seven "trial" stimuli were pasted, and "trial" anchors were constructed. The construction was identical to that for the first 50, but the "trial" stimuli were purple hues (see photo) from color chip Number 94 to Number 98. The "trial" anchors were Number 93 and Number 100.

Procedure: Once the experimenter (E) and the subject (S) were seated with a table or desk between them, E placed the AR apparatus on it and said,

"This is a color test, though probably not like any you've had before. I'm going to show you some colors, and then ask you some questions about them. Let's start with these."

E then placed the "trial" anchors in front of S and said,

"You see, these are both purples, but they're 2 different shades of purple. The one on the left is a bluish purple, and the one on the right is a reddish purple. I'm going to show you some more purples down here (indicating the bottom row of the AR) and I want you to tell me whether each looks more like the one on the left or the one on the right. Let's start with this one."

E then popped up the first square on the S's left with the magnet. If S did not respond or showed she misunderstood, E asked "Which color does this look more like,the one on the left or the one on the right?" pointing to the anchors. After S's response, E proceeded to the second "trial" square, asking "How about this one?" All 7 were run through.

Then E said, "Okay, good. Now we're going to go through them again, but this time these colors are going to be turned over. (E picked up the anchors, turned them over, and handed them to S.) You can turn them over to check them any time you want. Do your best to get the right answer every time, so if you're a little unsure of which it's closer to, feel free to turn them over (E gestured a mock turn-over of the anchors) and look at them."

The trial stimuli were run through again. E stated once during this run-through, in the middle (unless S hesitated in her choice before the middle, in which case the

statement came then):

"If you're a little unsure, feel free to turn the cards over to help you out."

After the 7 "trial" stimuli were run through, E took back the purple anchors and stated, "Good, now we're going to do the same thing, but this time with greens." (E turned over the 2 anchor greens for several seconds, then concealed them again.) "These are the "left" and "right" greens. The other greens you'll be seeing and telling me about are down here (pointing to the top several rows of the AR). But first, let me show you all the different greens you'll be seeing right here."

E then revealed a collection of 15 color chips that ranged from 73 to 81, with some additional less-saturated but like-hued chips thrown in. He spread them out fan-like, stating, while making sure S was attending,

"The left one (pointing to the face-down anchor card marked "L") is this one (indicating that green in the fanned-out chips) and the right one is this one (likewise with the other anchor). As you can see, some will be easy to judge, like this (indicating No. 74) obviously looks more like this one (pointing to No. 73) and this (No. 80) looks more like this (No. 81). But these (pointing to several in the middle) are harder, as you can see."

After letting S look at the fanned-out stimuli for 2 or 3 more seconds, E put them away. Picking up the anchors,

still face-down, and handing them to S, he said,

"Now I want you to hold these in your hands. Like before, you can turn them over and look at them any time you want, as many times as you want. So if you're ever in doubt about the right answer, you can feel free to check the cards to help you get it. Do your best to get the right answer on every one. Now turn them over once to get a look at them. (E allowed a 2-3 second exposure.) All right, turn them back. Now let's start. How about this one?"

E popped the first stimulus up. He went from S's left to right, starting at the top row and continuing down to the last stimulus, at which point the task ended.

At 2 points in each of the first 2 rows, if possible at a point S hesitated in giving her response, E encouraged the checking of the anchor by stating, "Remember, if you have any doubt at all, you can check the cards if you want." or "Feel free to look at the cards as many times as you want." After the first 2 rows, no more such encouragement was given.

E recorded S's responses by writing "L" or "R" on a 4"x4" card, suffixing "A" for those times S turned the cards over.

AR Score: The score for the AR was the total number of "A's" recorded on the card, i.e., the number of times S turned the cards over.

## Appendix B

## The Children's Dependency Scale

Following is the procedure used in the administration of the Children's Dependency Scale. The scale itself begins on the next page.

The specific items used to obtain the CDS score utilized in the study are circled. (See Procedure chapter.)

The CDS was administered following administration of the AR. S was presented with the scale and a pencil, and instructed:

"This is a true-false test, but not the kind of test you take in school; there are no right or wrong answers. It just asks for your own opinions. Write your name at the top and do all the questions. If you're not sure what any of the words or questions mean, ask me to explain. Okay?"

If S asked for the definition of a word, a simple one was provided. Sometimes S stated she was not sure what her answer was, or, e.g., "Does 'riding the bus alone' mean with nobody else on the bus or just with nobody else in your family?" In these cases, S was encouraged to figure it out on her own; no elaborations or embellishment of the questions was done.

Children's Dependency Scale

Grade School Attitude Questionnaire

Name _____

(T) F 1. When I was little, I had an invisible friend.

T F 2. My mother lets me choose the clothes she buys for me.

T F 3. I like to be just a little sick so I can have meals in bed.

T F 4. I often telephone my friends.

T F 5. I don't like to have my face washed.

T (F) 6. I ask my teacher a lot of questions.

T F 7. My parents like all my friends.

T F 8. When my toys break, I try very hard to fix them.

T F 9. My mother brings me to school.

(T) F 10. I like to have my mother hug me a lot.

T F 11. If I get up first, I get my own breakfast.

T F 12. My mother gets everything ready when I take my bath.

T (F) 13. My parents let me go to the movies by myself.

T F 14. I never walk anywhere if I can get my parents to drive me.

T F 15. I would rather have someone give me a present than just money.

(T) F 16. My mother doesn't let the other kids pick on me.

T F 17. I always try to do what my friends want me to do.

T F 18. Sometimes I spend the night at my friend's house.

(T) F 19. I would like to be a teddy bear.

T F 20. When I have to buy a present for someone, I usually pick it out myself.

T (F) 21. I think it's fun when it thunders.

T F 22. I go swimming with my friends.

(T) F 23. I forget where I put my things pretty often.

T F 24. Sometimes I like to play by myself.

T F 25. My mother helps me choose what to wear to school each day.

T (F) 26. Sometimes I stay home alone.

T F 27. I read the funnies in the newspaper.

T F 28. Drawing is more fun when I can draw what I want to draw.

(T) F 29. I'd rather have someone read to me than have to read something myself.

T F 30. Sometimes my mother helps me cut up my meat at supper.

T F 31. I try daredevil tricks on my bicycle.

T F 32. Kids have more fun than grownups.

T (F) 33. I will be glad when I am old enough to go anywhere I want to all by myself.

(T) F 34. I would like to be five years old again.

T F 35. I'd like to live in a cave.

T F 36. My parents make me save part of my money.

(T) F 37. If I can't find anyone to play with, my mother gives me something to do.

(T) F 38. I try very hard to keep my clothes clean.

T F 39. I get sick a lot.

T F 40. Drawing is more fun when the teacher tells us what to draw.

(T) F 41. I get hurt a lot.

(T) F 42. I don't like to go outdoors alone after dark.

T F 43. It is better to go along with the other kids most of the time.

T F 44. I go shopping by myself sometimes.

(T) F 45. There is no sense studying hard if the teacher never notices.

T F 46. I polish my own shoes.

T F 47. I wouldn't want a friend no one else liked.

T F 48. I often get home from school late.

(T) F 49. I seldom write letters unless it is for schoolwork.

(T) F 50. I won't go downtown by myself.

T F 51. Grownups are too bossy.

T F 52. Sometimes I ride the bus alone.

T F 53. I would like to own a tiger.

T F 54. I wish my best friend and I could buy some clothes alike.

T F 55. I wouldn't care if some people didn't like me.

T F 56. I check with my teacher often to make sure I'm doing things right.

T F 57. I like to have someone help me with my schoolwork.

T F 58. If I don't know how to spell a word I usually ask someone.

(T) F 59. After I finish my class work I wait for the teacher to give me something else to do.

T (F) 60. I wouldn't mind going to the dentist by myself.

T F 61. People tell me what to do too often.

T F 62. I would like to ride in a plane.

(T) F 63. Most of the time my mother takes me with her when she goes visiting.

T (F) 64. I like to go exploring by myself.

T F 65. I like to have someone help me pick out a book when I go to the library.

Appendix C

The Parental Attitude Research Instrument

Inventory of Attitudes on Family Life and Children

(Note: The following 30 items comprised the scales which were used in the data analysis.)

Read each of the statements below and then rate them as follows:

| A | a | d | D |
|---|---|---|---|
| strongly agree | mildly agree | mildly disagree | strongly disagree |

Indicate your opinion separately for children with epilepsy and for children without epilepsy, in the columns provided. That is, if you feel a statement applies differently to children with epilepsy than to children without epilepsy, you will circle a different letter in each column. If you feel the statement applies the same to all children, you will circle the same letter in each column.
There are no right or wrong answers, so answer according to your own opinion. It is very important to the study that all questions be answered.

| | | children without epilepsy | | | | children with epilepsy | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Agree | | Dis-agree | | Agree | | Dis-agree | |
| 1. | A good mother should shelter her child from life's little difficulties. | A | a | d | D | A | a | d | D |
| 2. | Some children are just so bad they must be taught to fear adults for their own good. | A | a | d | D | A | a | d | D |
| 3. | A child should be taught to avoid fighting no matter what happens. | A | a | d | D | A | a | d | D |
| 4. | Parents should adjust to the children some rather than always expecting the children to adjust to the parents. | A | a | d | D | A | a | d | D |
| 5. | There are so many things a child has to learn in life there is no excuse for him sitting around with time on his hands. | A | a | d | D | A | a | d | D |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 6. | A young child should be protected from hearing about sex. | A | a | d | D | A | a | d | D |
| 7. | A mother should do her best to avoid any disappointment for her child. | A | a | d | D | A | a | d | D |
| 8. | It is frequently necessary to drive the mischief out of a child before he will behave. | A | a | d | D | A | a | d | D |
| 9. | A child should be taught to always come to his parents or teachers rather than fight when he is in trouble. | A | a | d | D | A | a | d | D |
| 10. | Parents must earn the respect of their children by the way they act. | A | a | d | D | A | a | d | D |
| 11. | Children who don't try hard for success will feel they have missed out on things later on. | A | a | d | D | A | a | d | D |
| 12. | It is very important that young boys and girls not be allowed to see each other completely undressed. | A | a | d | D | A | a | d | D |
| 13. | A child should be protected from jobs which might be too tiring or hard for him. | A | a | d | D | A | a | d | D |
| 14. | A wise parent will teach a child early just who is boss. | A | a | d | D | A | a | d | D |
| 15. | There is no good excuse for a child hitting another child. | A | a | d | D | A | a | d | D |
| 16. | Children are too often asked to do all the compromising and adjustment and that is not fair. | A | a | d | D | A | a | d | D |
| 17. | Parents should teach their children that the way to get ahead is to keep busy and not waste time. | A | a | d | D | A | a | d | D |
| 18. | Children who take part in sex play become sex criminals when they grow up. | A | a | d | D | A | a | d | D |

| | | |
|---|---|---|
| 19. Parents should know better than to allow their children to be exposed to difficult situations. | A a d D | A a d D |
| 20. Children need some of the natural meanness taken out of them. | A a d D | A a d D |
| 21. Children should not be encouraged to box or wrestle because it often leads to trouble or injury. | A a d D | A a d D |
| 22. As much as is reasonable a parent should try to treat a child as an equal. | A a d D | A a d D |
| 23. A child who is "on the go" most of the time will most likely be happy. | A a d D | A a d D |
| 24. Sex is one of the greatest problems to be contended with in children. | A a d D | A a d D |
| 25. Children should be kept away from all hard jobs which might be discouraging. | A a d D | A a d D |
| 26. It is sometimes necessary for the parents to break the child's will. | A a d D | A a d D |
| 27. Most parents prefer a quiet child to a "scrappy" one. | A a d D | A a d D |
| 28. There is no reason parents should have their own way all the time, any more than that children should have their own way all the time. | A a d D | A a d D |
| 29. The sooner a child learns that a wasted minute is lost forever the better off he will be. | A a d D | A a d D |
| 30. There is usually something wrong with a child who asks a lot of questions about sex. | A a d D | A a d D |

# Appendix D

## Severity of Seizures Scales

### Frequency of seizures

Frequency of seizures was scaled from 1 to 9 points, as follows:

1 point: between 1 seizure every 6 years and 1 seizure every 10 years

2 points: between 1 seizure every 1.5 years and 1 seizure every 5.9 years

3 points: between 1 seizure per year and 1 seizure every 1.5 years

4 points: between 1 seizure every 5 months and 1 seizure every 9 months

5 points: 1 seizure every 4 months

6 points: between 3 seizures per month and 1 seizure every 3 months

7 points: between 2 seizures per day and 1 seizure per week

8 points: 3 or 4 seizures per day

9 points: 5-15 seizures per day

### Type of seizures

Type of seizure was rated according to the degree of loss of control experienced.

2 points: a seizure consisting solely of a bodily ache - e.g., stomachache or backache

4 points: any seizure consisting of a hallucination - e.g., visual, auditory, or gustatory

6 points: staring spells and petit mal absences

8 points: jerking, stiffening, or twitching movements, or going limp; talking; a behavioral sequence

10 points: a fall to the ground

12 points: loss of bowel or bladder control

A combination of elements scored the highest-level feature, plus 2 for an additional feature which alone would score 8 points or above; or plus 1 for an additional feature which alone would score 6 points or below.

The scale thus ranged from 2-14 points.

Appendix E

Parental Information Form

Family Information

Subject's Name _____ Date of Birth _____

Mother's Name _____ Father's Name _____

Occupation _____ Occupation _____

Age ____ Education _____ Age ____ Education _____

Nationality _____ Nationality _____

Approximate family income _____

Age and sex of subject's siblings _____

As accurately as you can remember, what was the date (year and month) of your daughter's first seizure? _____

In regard to the seizures your daughter had during the first year or so that she had them:

Approximately how frequent were they ? _____

Did she lose consciousness for a period without falling, then resume what she was doing? _____ Frequency:_____

Did she carry out some behavior while unconscious, which she could not remember later, like talking, lip-smacking, walking around, striking out, or something else? (Underline which)? _____ Frequency:_____

Did she have headaches, or other body aches, or hear, see, smell, or taste something that wasn't there? (Underline which)? _____ Frequency:_____

Did she fall? _____ Frequency:_____

Did her limbs jerk? _____ Frequency:_____

Did she physically injure herself? _____ Frequency:_____

Did she lose bowel or bladder control? _____ Frequency:_____

How well do medications control her seizures now? _____

If control was achieved, approximately how long after her first seizure was this? _____

Did her seizures in general get worse or better after the first year or so? _____
To what degree? _____

## Appendix F

Letter sent to prospective subjects' parents

On the following page is a sample of the letter sent to solicit participation in the study.

The Children's Hospital Medical Center

300 Longwood Avenue, Boston, Massachusetts 02115, Telephone: (617) 734-6000

May 1, 1973

Dear

I am a researcher working in the Seizure Unit here at Children's Hospital. I am conducting a study with epileptic children so that we can better understand some of the ways a child is affected by epilepsy. When we have a more thorough idea of what these effects are, we will be in a better position to help children adjust to their illness in the future.

Your daughter has been selected as one of several girls who would be appropriate for this study because of her age. Parents who have their child participate will be given a nominal fee. All that is required is that the child answer a series of True-False questions about herself, and that she subsequently be tested for her ability to judge the qualities of various sounds. Children usually find the procedure, which takes under an hour, an enjoyable one. The child's mother is also asked to fill out a questionnaire asking her opinion on a range of child-rearing issues. The procedure can be carried out either at your home or here at the hospital, just before or just after your daughter's next appointment.

Your participation will be greatly appreciated, since it is somewhat difficult finding a sufficient number of children like yours who are appropriate for the study. I will be calling you within a week to see if you are able to participate, as well as to answer any further questions you might have about the study. If so, we can then set up a time when it is mutually convenient for me to see you.

Sincerely yours,

Robert Meier

Robert Meier, A.B., M.A.
Researcher, Seizure Unit

Appendix G

Means, standard deviations, and ranges of all distributions

| Measure | Total Sample* | | | Age Group 1* | | | Age Group 2* | | |
|---|---|---|---|---|---|---|---|---|---|
| | M | SD | Range | M | SD | Range | M | SD | Range |
| Anchor Referral | 10.5 | 11.1 | 0-42 | 10.8 | 12.6 | 0-42 | 10.3 | 9.1 | 0-36 |
| Children's Dependency Scale | 11.4 | 3.0 | 3-18 | 11.2 | 3.1 | 3-15 | 11.6 | 2.9 | 6-18 |
| Type of seizures in first year | 9.6 | 2.5 | 2-14 | 9.4 | 2.8 | 2-14 | 9.9 | 2.1 | 2-14 |
| Frequency of seizures in first year | 5.1 | 2.0 | 1-9 | 5.4 | 2.8 | 1-9 | 4.9 | 1.6 | 1-9 |
| Onset age of seizures | 56.2 | 37.2 | 0-124 | 59.2 | 38.6 | 2-124 | 53.3 | 34.6 | 0-90 |
| PARI Scales | | | | | | | | | |
| Fostering Dependency | 10.1 | 2.6 | 5-17 | 9.7 | 2.1 | 5-17 | 10.5 | 3.1 | 5-17 |
| Suppression of Aggression | 10.6 | 3.0 | 5-17 | 10.5 | 3.0 | 5-17 | 10.7 | 2.9 | 5-17 |
| Suppression of Sex | 8.1 | 2.7 | 5-13 | 8.0 | 2.6 | 5-13 | 8.2 | 2.7 | 5-13 |
| Breaking the Will | 9.9 | 3.5 | 5-18 | 9.9 | 3.4 | 5-18 | 9.9 | 3.5 | 5-17 |
| Approval of Activity | 11.2 | 3.2 | 5-18 | 11.0 | 2.7 | 6-16 | 11.5 | 3.5 | 5-18 |
| Encouraging Verbalization | 16.9 | 2.3 | 13-20 | 16.3 | 2.1 | 13-20 | 17.5 | 2.4 | 14-20 |
| Equalitarianism | 15.3 | 2.4 | 7-20 | 14.8 | 2.2 | 7-17 | 15.8 | 2.4 | 11-20 |

*Total N = 40; each age group, N = 20.

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## Postscript

In the interest of technical accuracy, the following points in regard to data analysis, methods, and procedures are included.

1.--First, in regard to the normalization of data distributions preceding the computation of the Pearson r: Not all distributions were normalized; only those were which appeared to exhibit some skew. This included all of the PARI scales with the exception of Encouraging Verbalization--Group 1 (EV--Gp. 1), Equalitarianism--Group 2 (Eq.), Approval of Activity--Group 1 (Ap. Act.), Suppression of Aggression--both groups (S. Ag.), and Breaking the Will--both groups (Br. W.). The Anchor Referral (AR), Children's Dependency Scale (CDS), and Seizure Parameter Distributions were normalized. (Age was not normalized; although some skew existed, it did not appear to be major.) Pearson r's were recalculated in the case of all AR correlations as broken down by Age Group (with the exception of a very minor Pearson r whose significance or lack of significance had virtually no bearing on the conclusions of this study, i.e., AR versus Age.) Pearson r's were not recalculated in the case of each CDS correlation as broken down by Age Group, however. After recalculating four of these statistics (Type of Seizures versus CDS for Groups 1 and 2, Suppression of Sex--S·Sex--

versus CDS for Gp. 1, and S. Ag. versus CDS for Gp. 1), the average change in Pearson r was slightly over one point. Therefore, further recalculation was not considered warranted. (The CDS distribution for Gp. 1 was skewed to a small degree; for Gp. 2 it was skewed minimally.) Two independent variables which had somewhat skewed distributions--Onset and Frequency (Freq.) of Seizures--exhibited correlations with the CDS of under .10; .37 was required for significance at the .10 level, and in no case of recalculating a Pearson r for AR-independent variable relationships had the statistic changed more than 21 points. (The average change disregarding algebraic sign was under 8 points.) It thus seemed highly unlikely that further recalculation was indicated, although it must be pointed out that the possibility does exist; such recalculation could alter the pattern of results in regard to the CDS. If this be the case, the conclusions of this study in regard to emotional dependency (ED) would bear reexamining. The direction such change would take is unpredictable, although the minimal changes exhibited in Pearson r when recalculation was performed were in the direction of a Pearson r of 0, and such a shift overall would be consistent with the findings of this study in regard to ED.

Further, no Total Group distribution on any variable (i.e., the total sample, not broken down by Age Gp.) was normalized. This study was designed with the variable of age in mind, and breaking down the sample into two age

groups was considered to be the most meaningful way to look at the data, a judgment seemingly justified by the emergence of clear age group differences in the results, especially in regard to the AR measure. In addition, only two Total Gp. Pearson r's from the original, non-normalized data analysis had attained (and only two others approached) statistical significance; and in regard to these two relationships, the same pattern of Age Gp. differences within the Total Gp. emerged: Age Gp. 1's correlation was statistically significant and Age Gp. 2's was not. Given that the two Age Gp.'s exhibited different patterns of relationships and were likely in this way representative of two different populations, it seemed not only irrelevant but also unjustified to calculate statistics with them combined in the Total Gp. It should be pointed out, though, that it is conceivable, although highly unlikely (given the magnitudes of Pearson r's originally appearing), that a normalization of the Total Gp. and subsequent recalculation of Pearson r's could have resulted in a different pattern of results from that obtained from the original non-normalized data analysis. (Averaging normalized Pearson r's for each Age Gp. to arrive at the statistics for the Total Gp., utilizing Fisher's z transformation--which method was used with the two Age Gp. Pearson r's to arrive at the reported Total Gp. r between AR and Fostering Dependency, AR and EV, and CDS and FD, since the original, non-normalized Pearson r's were not available for the Total Gp. for these

variables--strongly suggests this would not have been the case however.) Given the above-stated reservations about the meaningfulness of such statistics, and also the fact that few Pearson r's did change significance levels after normalization, this eventuality is considered unlikely. It would have required a major change in magnitude of Pearson r's to alter the original conclusion that, in regard to the Total Gp., the hypotheses were unconfirmed.

Further, in regard to the normalization of distributions, it should be noted that the T-scaling method was used with a minor variation. When more than one case occupied a class interval (i.e., had the same score on the original scale), the T-score for that interval was interpolated as one approximately in between the one assigned to that class interval by the T-score conversion table and the one assigned to the previous class interval. This was done for smoothing purposes, since the sample was not very large; the straight-line fitting that has been recommended for smoothing was not done. Thus in some cases the distributions might not have been completely normalized. Analysis of the distributions via their interquartile ranges and mean-median differences reveals that most were likely effectively normalized (see next paragraph). In the case of those that were not, it should be kept in mind that the Pearson r may have been somewhat erroneously estimated. (In some cases, the clustering-together of subjects at a few score-values, as well as bi-

modality, may have made it impossible to perform a true normalization, and thus use of the Pearson r as a measure of correlation might be questionable due to the presence of skew. In the large majority of cases, however, chi-square analyses were performed to detect relationships for which the Pearson r might have been an inappropriate statistic. Such detected relationships are all reported in this study. Chi square analyses were not performed only in those cases where a previous pattern of non-significant chi squares suggested that their calculation would not be fruitful.)

Specifically, the distributions which might not have been effectively normalized are: EV, Age Gp. 2; EQ, Age Gp. 1; Freq., Gp. 2; Type of Seizure Gp. 2; and, less likely, CDS and AR, Gp. 1. It is difficult to judge what possible implications this could have for the conclusions of this study. Normalization of distributions, when effectively achieved, resulted sometimes in increments in the Pearson r, sometimes in decrements. It is conceivable that the pattern of results could have changed; the conclusions of this study would then bear re-examining. For example, it could eventuate that two of the conclusions--that different variables were related to instrumental dependency (ID) in the two different age groups; and that different variables were related to ID as opposed to ED--are not warranted by the data.

In this regard, the following points might be made. From a theoretical standpoint the conclusions of this study

have been seen as exploratory in nature and of possible heuristic value only. They are suggestive in nature, and do not therefore bear as much theoretical weight at any rate as would confirmation of hypotheses. The question of a skewed distribution is less important, since the findings here are only being put forth as suggestive, exploratory leads needing further confirmation. Potential statistical misgivings do not need to be received in the same light as they would need to be if the original hypotheses had been confirmed.
From the standpoint of the data in regard to this question, it is seen as quite highly unlikely that hypotheses could have been confirmed were distributions all normalized. The magnitude of discrepancy between hypothesized and obtained statistics was in many cases quite large, whereas the average change in Pearson r after the successful normalizations that were performed was under 8 points; not every distribution relevant to hypothesis-testing was ultimately affected by skew, and several were only questionably so; and regardless of normalization, curvilinearity characterized some IV-DV relationships, as reported, whereas hypotheses predicted linearity. For these reasons, too--the average change in Pearson r of under 8 points in cases where skew was eliminated, the apparent normality of most relevant distributions, and the presence of chi square relationships (in which skew is irrelevant)--it is suggested that the exploratory pattern of results appearing and hence those suggestive

conclusions that were made in this study were unlikely to have been affected by any remaining skew in the distributions.

A final point to make about statistical analyses is that the chi square analyses were rechecked (except those "additional findings"), and some errors were discovered. The only substantive errors were as follows. In Table 7, after removing those subjects described in the following section, for Gp. 2 the chi square no longer attained significance at the .10 level. In Table 10, the chi square for Gp. 2 moved from statistical non-significance to statistical significance. These two shifts, given that both were for Onset Age of Seizures versus Dependency for Gp. 2, offset one another. They do not alter significantly the basic patterns of results; nor do they therefore call into question the basic conclusions of this study. (In a minor way, the finding that ID exhibited more significant relationships with the IV's than did ED is reduced in degree but it is unaltered in substance. Thus, this does not alter the basic theoretical points made about ID and ED made in the Discussion.) No other errors had any effect on the significance level of chi squares.

2.--Second, in the interests of technical accuracy, it should be noted that the standard procedure for the administration of the AR measure was not followed precisely for all Ss. Variations in procedure were as follows. For the first 5 Ss, they were not supplied with cards to turn over when they "needed help" in making a judgment of hue similarity.

Instead, they were told to ask the E to flip over 2 cards (attached to the AR apparatus) when they wished help. On these cards appeared identical color swatches to those on the cards which, for the 35 other Ss, were their source of "help." The second variation was as follows. For the second 5 Ss, the procedure was identical to that for the rest of the sample, with the exception that these 5 were not each uniformly encouraged to "test the anchor" (flip over the cards) twice for the first 2 rows (there were 5½ rows in all). They were encouraged somewhat less, on the average once for the first 2 rows. (For none of the Ss in the entire sample was there encouragement beyond the first 2 rows.) In addition, there were minor variations in the preface E gave the first several Ss, in regard to whether, e.g., (with initial Ss) the Ss should "do their best" versus (with later Ss) they "should make sure they get them all right."

It is possible that these variations in procedure biased the responses of the Ss in question. It could be, for example, that it was "easier" for the other 30 Ss in the sample to "refer to the anchor." Thus the observed relationships between ID and the DV's for the 2 Age Gps. (as well as for the total sample) might be confounded by this additional source of variance; if this is so, the basic conclusions of this study (in regard to ID) would bear re-examining.

In the author's judgment, subjectively speaking, these procedural variations were not sufficient to result in a

major change in the amount of anchor-testing, or "anchor referral," performed by the Ss. More objectively, the mean score of the first 5 Ss was lower, though probably not to a statistically-significant degree, than the mean of the total sample. The median was lower also. However, a list was drawn up of the best predictors of AR score (based for the most part on the total sample of 40 Ss). Informal analysis revealed that these first 5 Ss would be predicted to have lower AR scores than the mean at any rate (based, for example, on medical diagnosis, family income, seizure frequency, EV, and age, all of which were statistically-significantly related to AR scores for the Total Sample). Further informal analysis suggested that, if the variant instructions did have the effect of lowering AR scores, the result was an attenuation in magnitude of already-significant statistics, i.e., the pattern of results was unaffected. An overall informal analysis suggested that the pattern of results, and hence, the basic conclusions of the study, were highly unlikely to change as a result of the variant instructions. (The second 5 Ss, for whom the variation in instructions was more minor, had an AR mean score lower than the total, although by very little and most probably not to a statistically-significant degree; however, their median score was <u>higher</u> than that for the total sample.)

More formal statistical analysis strongly supports the above point that the basic pattern of results and hence the

basic conclusions of this study are unchanged. All Pearson r's for Age Gps. 1 and 2 (except Age versus AR), and all reported chi squares were recalculated by eliminating the first 10 Ss from the samples (7 from Age Gp. 1, 3 from Age Gp. 2). (Specific values of statistics are available from the author.) From this analysis, the pattern of statistics obtained was substantially the same as that previously obtained. The magnitude and significance level of statistics did not change overall; where individual statistics did change in this regard, the overall pattern remained. The re-analysis thus suggests that there should be no change in the 4 basic conclusions of this study: 1) hypotheses were unconfirmed; 2) the 2 Age Gps. exhibited substantially different patterns of statistically-significant relationships, suggesting different processes being related to dependency at different ages; 3) the IV's were correlated more highly with ID than with ED, suggesting the hypotheses were more relevant for the former than the latter; 4) relationships between IV's and DV's that appeared were usually different in either direction or nature (curvilinear versus linear) from prediction, suggesting that the causal relationships in regard to dependency in this population are different from those originally thought to be relevant. (The reader should be reminded that these conclusions derived from an exploratory analysis of the data, as stated in the main body; rigorous significance tests were relaxed to some degree.)

(It should be noted that the above re-analysis of data was performed without a re-normalization of distributions, which might have been necessary once the 10 Ss were removed from the samples. Also, the above caveats about the method of normalization and its effectiveness in reducing skew hold here, too. Thus, re-analysis ought to be taken as preliminary, cursory, or tentative. It is possible that, if the questions cited were responded to, the analysis would reveal a different pattern of results; the conclusions of this study, in regard to ID, would thus bear re-examining. This eventuality is considered unlikely given that 1) two previous re-analyses--the one cited above, performed by removing the 10 Ss from the sample; and that performed through normalization of data and recalculation of statistics in the first place--suggested no changes in basic patterns of results previously obtained; 2) the magnitude of changes in values of statistics necessary for a significant change in conclusions is in most cases high.)

(It is also important to note that most of the conclusions referred to above derived from the exploratory analysis that was conducted in this study, where rigorous standards of significance-testing were relaxed. That a hypothesis-testing analysis could be affected by the problems alluded to in regard to variant instructions, given the very high magnitude of discrepancy between hypothesized results and obtained results; given the presence of curvilinear relationships; and given that only ID was affected and not ED; is quite highly unlikely.

That is to say, the most basic conclusion of this study--viz., all hypotheses failed to be confirmed for the total sample and for both Age Gps.--is a conclusion in which a high degree of confidence can be maintained. In addition, the point referred to earlier can be repeated. If the question of hypothesis-confirmation seems quite clearly unaffected by the variant instructions with the 10 Ss (and, as stated above, it does), then it is only the question of exploratory results being modified that remains. Even if the preliminary re-analysis just described had not revealed the unlikelihood of such modification, the modification of exploratory results need not be considered as large a problem as modification of hypothesis-testing-level results. Conclusions made from the former are only tentative, suggestive, and provisional; their theoretical weight is not very heavy until such results are cross-validated on other samples. It is considered important to maintain this perspective at this point.)

Two final points can be made here. First, in regard to the control of race as a variable in subject selection: 2 black subjects were employed in the sample. Given their small number, no separate data analysis was carried out. It is considered unlikely that extraneous variance introduced by using these 2 Ss confounded the relationships between IV's and DV's that were looked at in this study. It should be kept in mind, however, that this could have happened; hence results and conclusions herein may not be generalizable to the

population of white epileptic girls, but rather, to a mixed population. Also, an AR score for one of these Ss was unavailable, and in the original analysis reported in this study the median AR score was assigned to her. It is, again, possible that the pattern of results reported might have been biased by this, since the score she would have obtained might have been different from the median. The direction of such potential bias is unknown; however, it is considered unlikely that an important change in the results would have resulted with a change in a score of one subject (especially given that she belonged to Age Gp. 2, the group in regard to which almost uniformly non-significant statistics appeared).

Second, the PARI data was only 97% complete (approximately). That is, mothers failed to fill out about 3.5% of the answers, on the average, and their scores for the scales in question were extrapolated from the answers that were provided. Had they provided 100% of the answers, it is conceivable their scores would have been slightly different, and different results might have obtained. The extrapolation was considered justified, however, given that, even if there did appear such a difference, a 3% (and this is probably an overestimate) change is not very likely to have had a meaningful effect on the pattern of results.

The author has all of the raw data and will provide same to anyone interested.

Vita

I was born on January 3, 1947 in Jamaica, New York to Max J. and Madeline A. Meier. My family moved to Westbury, New York, where I attended public schools. I then enrolled in the University of Michigan, majored in psychology, and graduated in 1968. After then entering the clinical psychology program at Boston University, I received my Masters degree in psychology in 1970.

In my second and third years of graduate school,I gained my first clinical experience via placement and internship at the Mental Health Unit of New England Medical Center and the Psychiatry Department of Beth Israel Hospital, Boston. During these years I also had some experience doing independent research, with Professor Robert Harrison.

I then worked as a Veterans Administration Psychology trainee for a year at the Veterans Administration Mental Hygiene Clinic in Lowell. During this year and the next, I also received my initial teaching experience, teaching psychology to Boston University undergraduates in the College of Liberal Arts (as a teaching fellow) and in the Metropolitan College (as a Lecturer).

For the past two years, I have been a staff psychologist at the Greater Lawrence Mental Health Center. I am also currently teaching psychology at Northeastern University, Boston State College, and Quinsigamond Community College.